

# CENTRAL PATENTS INDEX CLASSIFIED ALERTING BULLETIN

## Section D:

### FOOD DETERGENTS

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#### ABSTRACTS

#### INDEXES

II - PATENTEE

V - BASIC NUMBER

VII - PATENT NUMBER

COUNTRY	PUB DATE(S)	NUMBER RANGE
BELGIUM		
-Delayed	18 NOV - 24 NOV 80	883,355 - 883,474
-Non Delayed	17 NOV 80	884,433 - 884,572
BRAZIL	18 NOV 80	7,901,130 - 8,005,705
CANADA	18 NOV 80	1,089,601 - 1,090,050
CZECHOSLOVAKIA	29 AUG 80	6,303,318 - 7,900,593
DENMARK	10 NOV 80	7,901,455 - 8,002,550
W. GERMANY		
-DAS	27 NOV 80	1,580,939 - 3,016,793
-OLS	27 NOV 80	2,857,606 - 3,020,132
EUROPE		
-Unexamined	26 NOV 80	18,965 - 19,614
-Granted	26 NOV 80	0,131 - 7,025
FRANCE*	19 SEP 80 (BOPI 24 OCT 80)	2,449,390 - 2,450,033
UNITED KINGDOM	3 DEC 80	1,580,271 - 1,580,870 2,047,511 - 2,048,030
JAPAN		
-Unexamined	— 21 OCT - 25 OCT 80	47,010,772 - 54,123,476 55,134,801 - 55,137,157
-Examined	6 NOV - 12 NOV 80	80,043,321 - 80,044,560
NETHERLANDS	17 NOV 80 17 NOV - 23 NOV 80	165,356 - 165,632 7,903,757 - 8,002,887
NORWAY	10 NOV 80	7,901,223 - 8,002,805
AUSTRIA	15 NOV 80	7,400,641 - 8,003,147
SOVIET UNION	—	336,994 - 729,665
SWEDEN	17 NOV 80	7,902,329 - 8,006,971
UNITED STATES		
-Reissues	18 NOV 80	Re30,436 - Re30,437
-Patents	18 NOV 80	4,233,687 - 4,234,971

\*Printed patents actually published late October - early November, 1980



## Arrangement of Abstracts

See Appendix I for definition of 'Major' and 'Minor' Countries.

'MAJOR' COUNTRIES – An alerting abstract of every basic and examined equivalent document is provided except for equivalents from Canada, East Germany and Switzerland. The abstracts are arranged in CPI class order and within any one of the 135 classes are in country and patent number order.

'MINOR' COUNTRIES – Basic headings are included in sequence with the entries from the 'Major' countries.

## CPI Section Headings

See inside cover for further details.

A	Polymer Chemistry	F	Textiles, Paper, Cellulose
A+	Polymer Applns.	G	Printing, Coating,
AE	Polymer & General Chemistry		Photographic Chemistry
B	Pharmaceuticals	H	Petroleum
C	Agricultural Chemistry	J	Chemical Engineering
D	Food, Disinfectants, Detergents	K	Nucleonics, Explosives, Protection
E	General Chemistry	L	Refractories, Ceramics
E+	General Chemistry Applns.	M	Metallurgy

## Typical Abstract Heading

See CPI/WPI Instruction Manual No. 1A for explanation of the various flagged descriptors.

Patentee Code	Patentee Name	Other Classes	Publication Date	Main CPI Class for Section	Latest Priority	Earliest Disclosure Basic Patent	Accession No	Earliest Priority	Patent No	IPC
MEDA-				A89			69369W/42		=US 3964-992	
Chamber and process for 2-way electrophoresis - for sepn. of very small samples of body fluids (SW28.7.75)										
MEDAC GES KLINISCHE 11.10.74-DT-448552 (31.12.73-DT-365284)										
B04 J03 R16 (22.06.76) *FR2256-410 G01n-27/26										

Copies of Specifications may be ordered from our PATENTS SUPPLY DIVISION.



# D1: FOOD; FERMENTATION

## D11: BAKING

**CIMP- ★** D11 C/49 ★BR 7903-172  
Dough mixer  
CIMPAN COM IND MAQ 16.05.79-BR-003172  
(18.11.80) A21c-01/04

**LIPP/ ★** D11 86453 C/49 ★DT 2919-333  
Mechanical oil application to dough - directly through hole in dough kneading disc  
LIPPELT W 14.05.79-DT-919333  
(27.11.80) A21c-09/04

An oil or fat containing substance is worked into the end of divided pieces of dough during the mechanised kneading operation. This is done in a kneading station, 90° removed from the charging and the discharging station, by an eccentric kneading disc to which the liq substance is applied.

A dividing drum has four chambers at 90° from each other and is revolved in steps of 90° at say 25 rev/min. A lump of dough is cut off by a blade.

This keeps losses of the liq substance (and contamination caused thereby) to a minimum. The appliance is simple and easy to operate and to maintain. 14.5.79 as 919333(8pp39).

**PIST/ ★** D11 86555 C/49 ★DT 2921-425  
Electric oven lamp fitting - with snap fit of carrier element in oven wall locked against rotation

PISTOR M 26.05.79-DT-921425  
X27 Q71 Q74 (X26) (27.11.80) A21b-03/10 F21s-01/02 F24c-15  
An electric lamp for use in the oven of electric cookers has a carrier element which is held by three curved lugs in a snap fit in a hole of the oven wall. A radial web passes into a slot in the wall to secure the carrier element against rotation. Threads are pressed into the inside of the carrier element in the areas between the curved lugs for the protective well glass to be screwed in.

This carrier element can be produced in one stamping operation. It requires only one electrician to mount it in the oven. 26.5.79 as 921425(12pp39)

**VERZ- ★** D11 86580 C/49 ★DT 3015-048  
Flush fitting baking oven - with electronic controls in top drawer contg. centrifugal blower for cooling (NL 22.10.80)

VERZINKEREI ZUG AG 20.04.79-CH-003769  
X25 + Q74 (30.10.80) A21b-01/40 A21b-03/02 F24c-15/20  
Oven, esp. one of the flush fitting built-in types, has the electronic control units mounted in a separate push-in unit of a drawer in the top shelf. Drawer includes a centrifugal blower with a vertical drive shaft. Inlets for cool air and outlets to the intake of the blower pass the air over the electronic modules, as long as the oven is in operation.

Electronic control units can thus be mounted in an accessible place without restrictions by high temps. It results in a compact oven design and low overall height. 18.4.80 as 015048(18pp39)

**RHEO- ★** D11 86678 C/49 ★DT 3019-890  
Dough pieces alignment - by revolving drum between discharging conveyor and receiving conveyor (NL 26.11.80)

RHEON AUTOM MAC 24.05.79-JA-064272  
(27.11.80) A21c-09/08  
A web of dough which has been cut up into triangular pieces of dough with leading bases alternating with leading splices is passed over a belt conveyor to a revolving drum. The relative speeds and dispositions of the drum relative to the return pulley of the belt conveyor are so designed that the pieces of dough are alternately turned over so that all lead with the bases.

This makes a minimum of scrap when cutting up a web but aligns the pieces of dough right for the next processing machine, for example a rolled crescent pastry. 23.5.80

as 019890 (27pp39)

**BAKP ★** D11 86967 C/49 ★GB 1580-442  
Forced cooling of biscuits subsequent to baking - with air of controlled humidity to minimise cracking  
BAKER PERKINS HOLD 20.08.76-GB-034783  
(03.12.80) A21d-15/02

Biscuits are conveyed from an oven through a region of circulating air of predetermined temperature and humidity to obtain controlled cooling. Pref. the biscuits are conveyed in a stack on an open-work conveyor through which cooling air is blown. At least some of the air is cooled below ambient. Preferably the air is recirculated using a fan. It may be humidified by steam or an atomised water spray blown through a nozzle.

The method reduces the tendency for crack formation in the biscuits after the baking operation. 20.8.76 as 034783 (4pp295)

**HAAS/** D11 08375 A/05 =GB 1580-860  
Moulding wafer biscuit cornets etc., esp. for frozen foods - using high sugar content paste to retain biscuit crispness (OE 15.12.77)  
HAAS F 30.09.76-OE-007258  
(03.12.80) \*BE-859-047 + A21c-15/02

Thin-walled hollow wafer bodies are made using a baking mould with a lower female and upper male half. Dough is placed in the lower half, the upper half is lowered to distribute the dough and the wafer is baked. Bodies of firm kneadable dough are formed outside the mould and introduced individually into it.

The dough pref. contains 40-60% sugar and 0.4-0.6 litre water/kg. flour, and the bodies may be spherical, cylindrical, cubic or frustoconical and made in a cake-forming machine, by punching or cutting a dough strip, or by cutting cords from an extrusion press. The method permits the use of higher than conventional sugar contents. 29.9.77 as 040562 (4pp1358)

**PILL ★** D11 87081 C/49 ★J5 5104-648  
Susceptor appts. used in oven or furnace - contain chemical susceptor unit contg. polar solvent combined with solute  
PILLSBURY CO 19.12.78-US-970898  
E19 F06 J09 + Q74 (E37) (11.08.80) A21b-02 B01j-19/08 F24c-07/02

The susceptor appts. is used in an oven or a furnace in which bread or biscuit is dried or in which lumber or textiles are dried. It is fitted with a chemical susceptor device. When exposed to microwave radiation and performing a continuous heating step, the chemical susceptor device is permeable to the irradiation and thereby acts to reduce microwave energy.

The chemical susceptor device contains a polar solvent (e.g. ethyl alcohol, acetonitrile, dimethylsulphoxide, acetone or tetrahydrofuran) which is combined with a solute (e.g. potassium hydroxide, phosphate salt, sulphate salt, lithium chloride, lithium bromide, calcium chloride, calcium bromide, sodium nitrite, potassium nitrite, magnesium chloride or ferric chloride). 19.12.79 as 165492. (19pp15)

**MOFO= ★** D11 87672 C/49 ★SU -712-072  
Additive mixt. for macaroni paste - contains glyceryl mono:stearate and O-stearoyl poly-lactate for increasing strength of macaroni  
MOSC FOOD IND TECHN 10.08.78-SU-655994  
(30.01.80) A231-01/16

Additive mixt. for macaroni paste contains equal amts. of glyceryl monostearate and another cpd. This mixt. is emulsified in water and added to the other components of the dough. The strength of the macaroni produced from



this dough is increased by using as the second additive, sodium O-stearoyl-poly-lactate. The mixt. of the two additives is used in an amt. of 0.07-0.12% w.r.t. the flour. By this method, hydrophobic properties of gluten are increased. The hydration ability is reduced by 9%. The intensity of the drying is increased so that the drying time, before the baking, is reduced by 32%. The above mixt. exerts a synergistic effect. Nazarov, N.I., Finogenova, N.I., Nechaev, A.P. et al. Bul. 4/30.1.80 10.8.78. as 655994 (2pp70)

LANH- ★ D11 88140 C/49 ★US 4234-281  
Pan reservoir system for bakery - with stacking and storage of stacks until required

LANHAM MACH CO INC 08.09.77-US-831482 (11.04.72-US-243074)

Q35 (18.11.80) B65g-57/04 B65g-60

Bakery pans are formed into stacks which are held in a reservoir until required. When needed a stack is removed from the reservoir and fed to an unstacker. The unstacker indexes the stack vertically while individual pans are removed by a magnetic lifter which transfers each pan onto a conveyor. The conveyor has a longitudinal magnet sandwiched between a pair of conveyor belts. Pans are held by the magnet against the lower run of the belt.

The stack of pans in the unstacker is elevated by lugs which extend from a pair of vertical chain conveyors. The spacing between the conveyors is adjustable to accept pans of different sizes.

The appts. acts as a buffer to accept and deliver pans in a bakery. It may be used to recover pans of one size which are left in the reservoir while pans of a second size are removed. The unstacker uses magnetic handling to process distorted pans. 8.9.77 as 831482 C.i.p. 3937335 (+17.1.73, 4.6.76-US-325108, 584026) (28pp295)

TAKE/ D11 16291 B/09 =US 4234-605  
Bread prodn. in kneading and baking oven - with baking tin lifting table, paddle-mixer and heating units

TAKEUCHI S 19.08.77-JA-099833

+P28 (18.11.80) \*DT2836-241 A21c-01/02

Bread is made by placing flour and other ingredients in a removable combined trough and baking-pan unit in an oven, heating water in a tank in the oven, adding the water to the ingredients, and mechanically agitating the mixt. to form a dough while in the oven.

The dough is fermented, mechanically degassed, and secondarily fermented, then baked in the oven, all operations taking place in the unit continuously under atmospheric pressure without removing the unit from the oven. The method allows good bread to be made at all times by an unskilled person in a domestic oven. 9.8.78 as 933116 (9pp1358)

SCMZ ★ D11 88286 C/49 ★US 4234-606  
Prepn. of stabilised fluid shortenings for yeast raised prods. - contg. soft or hard mono- or tri:glyceride, ethoxylated ester emulsifier, solid phase food emulsifier, and liq. vegetable oil

SCM CORP 03.08.78-US-930746 (03.12.76-US-747296)

E17 (18.11.80) A21d-02/16 A23d-05/02

Yeast raised bakery prods. contg. shortening are improved by addn. of a fluid shortening prepd. as follows: (a) a mixt. contg. (by wt.) 4-10 pts. of a soft or hard mono- or diglyceride (I), 2-8 pts. ethoxylated fatty acid ester emul-

sifier (II), 2-8 pts. solid  $\beta$ -phase crystalline food emulsifier (III), 0-3 pts. solid stearine (IV), and  $\leq$  40 pts. liq. vegetable oil (V) is melted; (b) the mixt. is rapidly cooled to 80-90°F to initiate  $\beta$ -crystal formation and produce a chilled blend having dispersed fat crystals; (c) the chilled blend is worked at 80-90°F to develop further the  $\beta$ -crystal formation and produce a uniform dispersion of these in equilibrium with (V); and (d) the dispersion is fluidised at 80-90°F for long enough to complete  $\beta$ -crystal formation and produce a stabilised fluid shortening.

(II) is an ethoxylated fatty acid ester of glycerol, polyglycerols, propylene glycol, hexitol, hexitan, or isohexide; or a fatty acid ester of ethoxylated glycerol, hexitol, hexitan or isohexide.

Use of the fluid shortening improves dough conditioning and provides improved antistaling props. The prepd. shortening is stable to repeated temp. cycling at 50-100°F. 3.8.78 as 930746 (7pp478)

SAKA/ ★ D11 88289 C/49 ★US 4234-612  
Continuous frying of noodles to remove water - by directing oil jets against bottom of perforated containers holding noodles

SAKAKIBARA S 24.11.78-US-963274 (29.04.76-US-681437)

(18.11.80) A23l-01/16

Oil is used for drying noodles. The noodles are packed in open containers with perforated bottoms, the perforations being sufficiently small to prevent the displacement of the noodles, but sufficiently large to permit the passage of oil. The packed containers are covered with a removable lid and are conveyed through a bath of the oil while jets of oil are directed against the bottom of the containers from below. The jets urge the noodles apart to allow all surfaces of the noodles to be exposed to the oil. The oil is maintained at a temp. to convert water to steam.

Method is used for the prepn. of instant fried noodles. The noodles are subsequently prepd. for use by immersion in boiling water for about 3 minutes. The noodles are fried uniformly regardless of their position in a batch. 24.11.78 as 963274 (+25.10.77-US-844585) (5pp295)

HOUS- ★ D11 88294 C/49 ★US 4234-617  
Instant cooking noodles prepn. - using dough contg. cereal flour, a low de hydrolysate of starch derived from plant root or stalk, and water

HOUSE FOOD IND CO 23.05.77-JA-058719

(18.11.80) A23l-01/16

Instant cooking noodles are prepd. as follows: (a) mixt. of cereal flour (I), 1-10% (by wt. of (I)) of a starch hydrolysate (II) and H<sub>2</sub>O is kneaded to form a dough; (b) the dough is rolled into a sheet of thickness  $\leq$  2mm; (c) the sheet is cut into strips; and (d) the strips are steamed, then dried at 80-130°. (II) is a hydrolysate of a starch derived from a root or stalk of a plant, and has DE 1-10.

Use of (II) derived from the root or stalk of a plant (rather than from seeds) gives instant noodles which may be reconstituted with hot H<sub>2</sub>O, and which then have improved palatability and the mouth feel of cooked raw noodles. 13.4.79 as 029634 (4pp478)

See Also

D16 SU 729247

## D12: MEAT; FISH PROCESSING

META- ★ D12 C/49 ★BR 7903-170

Continuous vacuum filling machine

METAL JALMAK LTDA 16.05.79-BR-003170

(18.11.80) A22c-11/02

VEMA- ★ D12 86556 C/49 ★DT 2921-427  
Intermittent sausage skin filling - adjusting cut/off depending on overrun during deceleration period

DEMAG VERDENER MASC 26.05.79-DT-921427

T06 (27.11.80) A22c-11

Sausage meat is filled into skins or containers intermittently in preset portions, followed by a stoppage to allow the



previous skin or container to be closed before the next cycle begins. The amount of overrun of the quantity of sausage meat which still passes into the previous portion during deceleration prior to a stop is determined and the difference between the desired portion and the overrun is calculated. The machine is then set to start decelerating when this difference has been reached.

This ensures that the set portion is dispensed over long periods of time, independent of fluctuations of load, temp and speed. 26.5.79 as 921427(22pp39)

NIJH- D12 85616 C/48 =EP--19-331  
Electrical stunning machine for beasts, to be slaughtered - has sets of electrodes swinging out of conveying passage

NIJHUIS G J MACH BV 10.05.79-NL-003680

X25 (26.11.80) \*NL7903-680 A22b-03/06

D/S:- E(BE, CH, DT, FL, GB, IT, LU, NL, OE, SW).

The electrodes or sets of electrodes arranged one behind the other, a small distance apart, in a machine for stunning animals, esp. pigs for slaughter, project, in their starting position, into the "V"-shaped passage between two conveyor belts. From this position they can be tilted on a horizontal axis against the pressure of a spring, into a position aligned to the direction of motion of the conveyors and above them.

The first electrode is inclined forward and downward. Its electrode surface is very short and is only on its under surface. The second electrode is inclined against the direction of motion backward and downward and has an electrode surface extending over practically the whole of the side turned towards the first electrode. In its starting position the second electrode touches a circle which is concentric with the arc followed by the first electrode. In its middle position, the first electrode is aligned roughly vertically to the second electrode.

Good contact at the right place is ensured so that irrespective of the size of the animal, a sharp shock stuns it, without the possibility of muscular contraction causing bone breakage and internal bleeding.

2.5.80 as 200418 (10pp1014).

(E)ISR:- NL7705519; FR2390903; US3123852.

NIJH- D12 85617 C/48 =EP--19-332  
Electrical stunning of beasts esp. pigs for slaughter - with electrodes moved on carriage at speed of conveyor

NIJHUIS G J MACH BV 10.05.79-NL-003681

X25 (26.11.80) \*NL7903-681 A22b-03/06

D/S:- E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

All the electrodes are assembled on a carriage which is displaceable lengthways above the conveyors in a machine for electrically stunning animals for slaughter, esp. pigs. The carriage is connected to a driving mechanism which moves it backwards and forwards. The speed of the reciprocating motion is equal to or slightly less than that of the conveyors. These are arranged so that their surfaces form a "V". The electrodes project into the passage between the belts, and can allow a free passage through.

Sufficient intensity of flow is set up for the stunning of the animal without causing a condition of stress harmful to the quality of the meat. The output required from these installations is 600 pigs per hour which is possible if a first rate contact is made by the electrodes. During the brief period of contact, the animal is moved 30 cm by the conveyors, so that contact must be maintained over this distance.

2.5.80 as 200420 (9pp1014).

(E)ISR:- NL7705519; FR2390903; NL7514368;

GB1485570; NL6702456; GB1152606; DS-532368.

NIJH- D12 85614 C/48 =EP--19-333  
Conveyor in abattoir stunning machine - joins two endless chains by plates with curved edges forming closed hinges

NIJHUIS G J MACH BV 10.05.79-NL-003677

Q35 (26.11.80) \*NL7903-677 A22b-03/06 B65g-17/06

D/S:- E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

The edges of the plates forming, with two endless chains,

one of a pair of conveyors in a machine for electrically stunning animals for slaughter, are curved over and hinge on each other. The curves of the plate edging zones are concentric with the corresp. hinge pins of the chain links. The two conveyors are aligned parallel to each other so as to form a "V"-shaped passage between them. In the working plane the plates form a continuous surface, and the width of each plate in the direction of transport is equal to the length of the links.

The conveyor is modified so that there is no possibility of the animal being trapped, by its skin, tail or foot, between two successive conveyors with consequent damage. By hinging the plates together, the forming of a split at the turning wheels is avoided and the plates form a closed plane. Their curved surfaces assist in the moving of the animal.

2.5.80. as 200421 (9pp1014).

(E)ISR:- DS-345352; FR-520422; DS-327372; DS-327780; US3245517; DS1044707; FR2090671; NL7113155; US2812051; US3034638; NL7705519; FR2390903.

FRIN- ★ D12 86909 C/49 ★FR 2449-405  
Chemically removing skins from fish - by treating with a hot soln. contg. ammonia and/or alkanolamine(s)

CIE FRANC PROD IND 21.02.79-FR-004458

(24.10.80) A22c-25/17

Process comprises treating the fish with an aq. soln. contg 0.2-20%, pref 3-12% of ammonia and/or mono-di-, or tri-alkanolamine pref mono- or di-ethanolamine, at > 50°C, pref about 100°C, for 1 sec to 15 mins, pref 1-5 mins.

Compared with the known caustic soda treatment, the above, enables a better yield and quality. Also it is cheaper whilst avoiding handling dangerous NaOH. 21.2.79 as 004458(14pp597)

BIOE- ★ D12 86940 C/49 ★FR 2449-696  
Isolation of protein from fish or crustaceans - by washing with aqueous alcohol and ethyl acetate, then rinsing with water

BIOEXIM SARL 23.02.79-FR-004714

B04 (D21) (24.10.80) A61k-35/60 C07g-07

A proteinaceous material is isolated from marine organisms (fish or crustaceans), by washing the organisms several times, separating and rinsing, the washing being effected at 22-30°C for 10-15 minutes with a mixture of 80-85% of an ester, 10-12% of an alcohol, and 5-8% water, keeping the weight ratio of starting material to solvent mixture between 1 and 0.8.

The product is useful in cosmetics, pharmacy, and dietetics. 23.2.79 as 004714(7pp520)

MATS/ D12 04957 B/03 =J8 0043-746  
Softened, colour stabilised processed bonito flesh prodn. - by treating raw flesh with sodium bi:carbonate and di:sodium hydrogen phosphate

MATSUMURA S 09.05.77-JA-052825

E34 (07.11.80) \*J53139-753 A231-01/32

Process bonito foods such as dry bonito, smoked bonito, seasoned bonito, boiled bonito, pasty bonito, pickled bonito, sliced bonito, etc. are prepd. by adding NaHCO<sub>3</sub> and NaHPO<sub>4</sub> to raw bonito flesh before, during or after the processing to soften the flesh tissue and stabilise flesh pigment. Pref. an aq. soln. contg. 0.5-3 w/w % NaHCO<sub>3</sub> and 0.2-1.5 w/w % Na<sub>2</sub>HOP<sub>4</sub> is used.

The bonito flesh is softened, kept in clear red colour and can be processed to various foods. 9.5.77 as 052825, A231-1/325 (7.11.80) MATSUMURA S (3pp5) (J53139753)

PRIN- D12 54342 R/31 =NL-165-361  
Method and apparatus for removing meat - from bones  
PRINCE MFG CO INC (PRI-) 10.04.68-US-720052

(17.11.80) \*US3522-738 A22c-17/04 +A23n-17

One of the two cutting tools positioned diametrically opposite to each other in a device for cutting out a bone from a piece of meat, and esp. for removing the kneecap of a beast is formed like a chisel. It is part of a lever which is displaceable lengthways in the holder, and is engaged with a pinion on the pivot shaft.



The second cutting tool is fixed on the pivot shaft relatively to the first, so that when the first is pressed against the kneecap in the meat, the second cutter behind the kneecap is moved towards the chisel-form cutter, and during this movement the chisel is retracted into the holder.

The pivoting tool can be pressed by its edge against the holder without the edge of the other cutter coming into contact with it and causing damage. At the same time, the hinged cutter can penetrate the zone opened by the chisel to cut through the sinews so that the kneecap can be removed as a whole. 14.12.73 as 017152 Div.ex 8.4.69-005373 (3pp1014)

**TOWN ★ D12 88073 C/49 ★US 4233-709**  
Cutting sausage links suspended from slotted hook conveyor - advancing sausages over stationary knife  
TOWNSEND ENG CO 06.06.79-US-046119  
(18.11.80) A22c-11

Sausage links are carried by hooks attached to an overhead conveyor. Each hook has a vertical slot which receives a stationary knife positioned beneath the conveyor path. The knife severs the casing which connects adjacent sausage links. Severed sausages fall into a collection pan located beneath the knife.

Pref. guides surround the conveyor and knife at the severing station to prevent lateral or longitudinal deflection of the hook.

The appts. receives a continuous flow of sausages and then severs them to form pairs of linked sausages. 6.6.79 as 046119 (6pp295)

**HOLT ★ D12 88074 C/49 ★US 4233-710**  
Hamburger moulding appts. - with mould cavity vented through tapered slots  
HOLLYMATIC CORP 20.09.78-US-944000  
(18.11.80) A22c-07

Ground meat is moulded using a mould plate movable between a filling and a discharge position. The mould plate slides between spaced plates. One of the plates forms a vent having elongated parallel slots extending longitudinally to the mould plate. The slots are spaced from a mould opening which receives a pressurised charge. Displaced air is vented through the slots. Each slot is tapered from a narrow air intake side to a wider air exhaust side.

The appts. is used for making hamburger patties. The air vents prevent damage of the patties or meat degradation which often occur if air is trapped in the mould. 20.9.78 as 944000 (5pp295)

**KYOW ★ D12 01977 C/02 =US 4234-607**  
Pickled meat prod. prodn. - using pickling soln. contg. nitrogen dioxide, ascorbic acid and ascorbinase  
KYOWA HAKKO KOGYO 30.06.78-JA-078698  
(18.11.80) \*DT2926-089 A23b-04/12 + A23l-01/27

Prod. of cured meat prods. comprises treating a raw meat with a curing agent contg.  $\text{NO}_2$  and  $\geq 1$  cpd. from ascorbic acid and its alkali metal salts in the presence of ascorbinase.

Pref. curing agent is selected from  $\text{NaNO}_2$  and/or  $\text{NO}$ ; or  $\text{NaNO}_3$ . Amt. of curing agent is 10-200 (10-50) ppm (as  $\text{NO}_2$ ) on the basis of 1 kg of meat. Amt. of ascorbic acid (salt) is 100-600 ppm (as ascorbic acid) on basis of 1 kg meat. Amt. of ascorbinase is 100-1000 units on basis of 1 kg meat. Meat to be cured may be in the form of a meat emulsion having a pH 5-7.

The colour developing effect on meat is improved in a shorter period of time and the amt. of curing agent used may be reduced. 29.6.79 as 053161 (4pp963)

**RAIS ★ D12 88287 C/49 ★US 4234-609**  
Imitation mollusc meat prod. - obtd. by cooking a mixt. of the parboiled meat and vegetable protein fibres  
RALSTON PURINA CO 28.08.78-US-937618 (11.10.77-US-840925)  
(18.11.80) A23l-01/33

Imitation mollusc meat prod. contg. at least binding amts. of isolated vegetable protein fibres is made by mixing the fibres, buffered to about neutral pH, and  $\geq 20$  wt. % parboiled mollusc meat, forming the mixt. and cooking it to an internal temp. effective to form a coherent protein matrix.

Prod. contains a substantial amt. of vegetable protein fibre, with which the meat is normally incompatible. 28.8.78 as 937618 (4pp558)

**EMAI/ ★ D12 88288 C/49 ★US 4234-610**  
Removal of the offensive odour of shark meat - by immersion in saline and exposure to scattered light  
EMAI 11.05.79-JA-059461  
(18.11.80) A23l-03/26

The offensive odour of shark meat (I) is removed as follows: (a) (I) is cut into slices, and each slice is wrapped in a film and immersed in saline; (b) the slices are left at a temp. low enough to prevent decay under exposure to scattered light produced by allowing light from an electric lamp to pass through a synthetic resin sheet; (c) the saline soln. is discarded and the slices are left at 5-10° for  $\leq 8$  hrs. under exposure to the above light; and (d) the wrapping film is removed and the slices are washed in clear  $\text{H}_2\text{O}$ .

Simple, non-chemical treatment effectively removes the offensive (ammoniacal) odour of shark meat. 4.6.79 as 045263 (3pp478)

See Also

D13 J8 0043737 D16 GB 1580439

## D13: OTHER FOODSTUFFS

**ARAY/ ★ D13 C/49 ★BR 8001-591**  
Modifying colour of fruit skins  
ARAYAF 16.03.79-AR-275853  
(18.11.80) A23n-15/06 14.3.80 as 001591

**PODH/ ★ D13 C/49 ★CS 7708-206**  
Milk treatment and standardisation  
PODHORSKY M 08.12.77-CS-008206  
(29.08.80) A23c-03/02

**ADAM/ ★ D13 C/49 ★CS 7800-859**  
Ready foods conservation method and appts.  
ADAM M 10.02.78-CS-000859  
(29.08.80) A23l-03/32

**MALI/ ★ D13 C/49 ★CS 7807-093**  
Use of expanded silicates for agricultural products storage  
MALIK V 14.08.78-CS-007093  
(29.08.80) A23b-07

**MICA/ ★ D13 C/49 ★CS 7900-240**  
Potatoes storage  
MICA B 10.01.79-CS-000240  
(29.08.80) A23l-03/34

**KOSA/ ★ D13 C/49 ★CS 7900-271**  
Raw potatoes preservation  
KOSAR J 11.01.79-CS-000271  
(29.08.80) A23k-03/04

**ALFA D13 09557 R/07 =DS 1767-619**  
Margarine production system  
ALFA-LAVAL AB 07.06.67-GB-026355  
(27.11.80) \*US3494-275 A23d-03/02

A plant for the manufacture of margarine consists of mixers which convert water, fat, lactic acid, salt and vitamins to an emulsion, and of pumps which pass the emulsion through a plate heat exchanger to coolers and the packaging machines. If the latter cannot deal with the full output, the margarine



strands are recycled to tube heat exchangers where the surfaces of the strands are heated, and to a plate heat exchanger where the margarine is liquefied to be added to the emulsion circuit.

This prevents any contact of recycled margarine with the ambient air so that oxidation (rancidness) and infection risks are excluded. 29.5.68 as 767619(4pp39)

**VGIM- D13 60493 W/37 = DS 2103-281**  
Appts for treatment by heat, cold, etc - esp a roaster for coffee or cocoa

PROBAT W VON GIMBOR 25.01.71-DT-103281  
(27.11.80) \*DT2103-281 +A23n-12

A machine for the heat treatment of granular material, specially for roasting of coffee or cocoa, consists of a paraboloid basin which revolves around a vertical shaft at such a speed that the beans are constantly discharged over the lip of the basin. Hot air is admitted from the top through a central pipe in a cover. This cover has outwardly inclined ribs which are curved to the shape of spirals and describe an arc of over 90° (upto 180°); the spirals and nearly at a tangent outside and opposite to the direction of rotation.

The result is an efficient treatment with a minimum of power consumption. 25.1.71 as 103281(4pp39)

**KAFF- D13 15358 A/08 = DS 2634-535**  
Decaffeination of coffee - by extraction with moist supercritical nitrous oxide and binding the caffeine with an ion exchange resin

KAFFEE-VEREDELUNGS 31.07.76-DT-634535

A91 (27.11.80) \*NL7708-374 +A23f-05/20

Raw coffee is decaffeinated by extraction with a circulating moist carrier gas which is N<sub>2</sub>O in a super critical condition. Caffeine is removed from the carrier gas onto an ion exchanger, e.g. a three-dimensional crosslinked polysaccharide and the N<sub>2</sub>O recycled. The ion-exchanger is suspended in water and the caffeine removed by altering the pH, e.g. by adding acetic or formic acid to pH4. Caffeine is more soluble in N<sub>2</sub>O than CO<sub>2</sub>, leaching to a shorter process time 31.7.76 as 634535(3pp068)

**RALS D13 19591 A/10 = DS 2758-515**  
Reduction of combustion prod. residues in dried prods. - by mixing burner fuel with stoichiometric quantities of air

RALSTON PURINA CO 29.12.76-US-755414

+Q73 Q76 Q78 (27.11.80) \*US4075-358 A23I-01 F26b-23/02

Foodstuffs, pref. vegetable proteins, are dried with hot air which is heated directly from the flame of a burner. Fuel, e.g. NO<sub>2</sub> is supplied to the burner with sufficient air to effect complete combustion and the fuel/air mixt. is supplied in such amts that the drying air is heated to a suitable drying temp. e.g. >166°C. The loss of heat from the burner does not exceed 769 kW/m. burner and the flame is shielded from the drying air, e.g. by a baffle plate, so that consumption of drying air to support combustion is limited. By this method nitrite and other combustion residues in the dried foodstuff are reduced. 28.12.77 as 758515(6pp068)

**TUCH/ ★ D13 86445 C/49 ★ DT 2913-242**  
Milk degassing centrifuge - with contact switches controlling gas vent and milk inlet valves

TUCHENHAGEN O 03.04.79-DT-913242 (00.00.78-DT-836845)

J01 (27.11.80) B01d-19

Liquids, specially milk, are degassed by passing through a centrifuge where the expelled gas bubbles are removed and collect in a header. Contact switches are arranged close to the liquid/gas interface and control both a throttle valve for the milk inlet and a vent valve for the gas outlet.

This ensures an effective removal of air bubbles prior to milk heaters because air bubbles can cause milk to form incrustations on the hotplates. Degassing improves the quality of buttermilk. 3.4.79 as 913242 Add to 2836845 (5pp39)

**KREU- ★ D13 86456 C/49 ★ DT 2919-408**  
Confectionery moulding box emptying machine - with upturning mechanism on endless belt

KREUTER & CO KG GMB 15.05.79-DT-919408

(27.11.80) A23g-01/28

A machine for the upturning and emptying of moulding boxes in the manufacture of confectionary includes a mechanism which grips the moulding box as it arrives and turns it through 180°. The box is raised enough to allow its content to be moved on to another belt conveyor when an endless belt in the upturning mechanism is turned ON. The empty moulding box is then raised to another conveyor.

This machine requires a minimum stoppage for the belt conveyors and works at a fast upturning rate. 15.5.79 as 919408(14pp39)

**MECC- ★ D13 86569 C/49 ★ DT 2940-795**  
Emulsion homogenising machine - has four displacement pistons instead of conventional three

OFF MECC SOAVI BRUN 22.05.79-IT-022886

P13 (27.11.80) A01j-11/16

A homogenising machine, for use specially to homogenise milk and similar emulsions, is a volumetric displacement pump with several pistons which feeds a homogenising valve. Instead of the conventional three-piston pumps it is suggested to use groups of four pistons or multiples of four.

The four-piston machines suffer less mechanical wear and have a better power distribution. The inflow rate is better coordinated with the outflow rate and they produce less noise. 9.10.79 as 940795(13pp39)

**DECI- ★ D13 86617 C/49 ★ DT 3018-486**  
Curdled milk fines separation - using sepg. screen with specified inclination and mesh size (NL 19.11.80)

DEC INT INC 17.05.79-US-040073

P13 (27.11.80) A01j-25/11

Fine particles of curdled milk are sped from the whey in the cheese mfe by an inclined feed chute which discharges on a separating chute of the opposite inclination. A flexible screen covers the bottom of the separating chute. A first compartment below it collects the bulk of the whey; a second compartment collects the residual whey and the fine particles of the curdled milk.

These fine particles are now recovered in a state where they can be recycled to the cheese making vats without affecting the cheese quality. They need not be sold as a second-grade product. 14.5.80 as 018486(12pp39)

**NEST ★ D13 86634 C/49 ★ DT 3018-884**  
Caffeine removal from oil solns. - by contact with hydrophilic phenol-formaldehyde resin

SOC PROD NESTLE SA 17.05.79-US-039956

A97 E13 (27.11.80) A23f-03/36 A23f-05/20 B01d-15/08

Removal of caffeine from oil solns. is carried out by contacting with a hydrophilic phenol-formaldehyde resin (I) contg. phenolic functional gps., and separating the caffeine-laden (I) from the soln.

Suitable oils are olive, corn, soya, peanut or lard oil, triolein, and esp. coffee oil expressed from ground roasted coffee. The treatment is pref. effected at 60-75°C in one or more fixed beds of (I), with a contact time of 20-60 mins. (I) can be regenerated by washing with n-propanol.

The process is esp. useful for recovering caffeine from animal or vegetable oils used for decaffeinating coffee, tea or their aq extracts (GB 1516208). 16.5.80 as 018884 (10pp367)

**BADI D13 02298 B/02 = EP G000-160**  
Feed pellet prepn. from feed flours - admixed with small amts. of urea-formaldehyde resin powder to reduce pellet abrasion

BASF AG 02.07.77-DT-729917

A97 C03 (26.11.80) \*EP-----160 A23k-01/20 C08I-61/24

D/S: E(BE, CH, DT, FR, GB, NL, SW)

Pellets of animal feed and UF resins are produced by homogeneously mixing (0.15-1.5 wt. %) a powdered UF resin (obtd. by spray-drying an adhesive soln. having a urea: HCHO molar ratio of 1:1.6-2 and having a free HCHO content of 1-4 wt. %) with mealy animal feed and pelletising.

The pellets require less energy during mixing (reducing abrasion), have high elasticity and a smooth surface (providing a measure of protection against mould or



bacteria). They also have a certain porosity so that their density is 20-25% less than without resin. (This is useful for pig feeding to reduce the incidence of over-eating). 16.6.78 as 100178 (6pp922) (G)

STAU ★ D13 86829 C/49 ★EP--19-415  
Acidic beverage fortified with whey protein - prepd. by ultrafiltration, contg. cold water soluble fumaric acid  
STAUFFER CHEMICAL CO 10.05.79-US-037793  
(26.11.80) A231-02/38

D/S: E(CH, DT, FL, FR, GB, NL).

Acidic, fortified beverage or concentrate contains a whey protein fortifier compsn. (A) to provide 0.5-5% whey protein in the liq. beverage, and cold-water soluble fumaric acid (I) to provide pH 3-4. (A) comprises (i) whey protein concentrate, derived by ultrafiltration of whey, with protein content 40-60% and ash content  $\geq 3$  (pref. 3-15)% and (ii) 0-2.5% of another whey protein contg. prod.

Component (i) is pref. derived from acid whey and is esp. the sole constituent of (A). Pref. formulations are citrus drinks of 1-3% protein content and pH 3.1-3.5. Opt. the compsn. is partly acidified with (I) to pH  $< 4.5$  (pref.  $< 4.0$ ), then further acidified with  $H_3PO_4$ .

The compsns. can be stored in containers for  $\geq 3$  months and because relatively small amts. of (I) are used are not excessively sour or unpalatable. They are stable before or after pasteurisation and storage, and of low turbidity.

7.5.80 as 301494 (22pp1251)

(E) ISR: GB1372219; FR2120794; US3737326; FR2369798.

UNIL D13 84812 C/48 =EP--19-441  
Ice confectionery mouldings extraction - facilitated by moulds with spreadable slits

UNILEVER LTD 11.05.79-GB-016418  
(26.11.80) \*DT3018-089 A23g-09/22

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

Mouldings of ice confectionery, e.g. in the shape of a sphere on a stick or an inverted letter P are produced in thin moulds of elastic material. The mould for a sphere, e.g. contains a top recess with a central core leading to the spherical cavity and four pairs of radial walls which face each other and are pressed together by a refrigerant. During the extn. of the moulding these walls splay open and allow the sphere to be extracted. A slot opens out in a similar way when an inverted letter P has been frozen and is to be extracted.

Even complex shapes of ice confectionery can be extracted from a mould.

12.5.80 as 301540.(14pp39).

(E)ISR: —

FROM- ★ D13 86911 C/49 ★FR 2449-407  
Wt. correction of individual cheeses after moulding - to excess height and then trimming all cheeses down to constant height  
FROMAGE BRESSE-BLEU 26.02.79-FR-004863  
(24.10.80) A23c-19/14

A process of correcting the wt. of a cheese closely in line with the declared prod wt.

The wt. adjustment is now made after the cheese has been moulded. Pref. each cheese is moulded in an open-topped mould fitted with a removable, coaxial top collar. This means that an excess of curds can be run into the mould, extending the cheese upwards above the top edge of the mould into the collar.

Alternatives, the curds can be run into a mould without top collar in this case the moulded cheese is tipped into a second mould of less depth than the first, leaving a margin of cheese projecting up beyond the top edge of the second mould.

Controlling the declared, point-of-sale wt of moulded cheeses, eg. Camembert. There is considerable reduction in the variation of wt of individual cheeses. Underweight prods can be eliminated with a much reduced give away of prod. and a consequent economy in prodn. costs. 26.2.79 as 004863(7pp448)

FROM- ★ D13 86912 C/49 ★FR 2449-408  
Mechanised brining and spiking of blue-moulded cheeses - in moulds perforated for brine circulation and location of spiking needles

FROMAGE BRESSE-BLEU 26.02.79-FR-004864  
(24.10.80) A23c-19/14

The brining and spiking are carried out in succession while the cheese is retained in a mould which allows brine to circulate around the cheese and has holes in the base which correspond with the positions of spiking needles.

For adequate brining, the mould pref. has a perforated side wall and an internal dia. slightly bigger than the dia. of the cheese. The mould pref. has on its base a set of coned supporting feet which can be used to locate the mould in a spiking jig.

Pref. cheeses are tipped from a multi-cavity forming mould into a multi-cavity spiking mould. The spiking mould is immersed in brine, removed and transferred to a spiking jig. Needles are driven vertically into the cheese both top and bottom. 26.2.79 as 004864(6pp448)

ROBE/ ★ D13 86913 C/49 ★FR 2449-409  
Acceleration of animal growth - by feeding threonine oroto-glutamate plus N methyl-glucamine  
ROBERTIA 23.02.79-FR-004634  
C03 (24.10.80) A23k-01

Threonine oroto-glutamate modified and solubilised by reaction with N-methyl glucamine (I) is useful as a food additive. (I) may be given in the feed or drinking water, usually at a dosage of 10-200mg/kg/day for larger animals the dosage is 15-20mg/kg/day, and for smaller animals it is 75-200mg/kg/day.

(I) increases the rate of growth of meat animals such as cattle, sheep, chickens, rabbits, and fish. 23.2.79 as 004634(19pp520)

BADI D13 10301 A/06 =GB 1580-665  
Sugar alcohol prepn. from aldonic acid lactone(s) - by hydrogenation with mixed oxide catalyst  
BASF AG 06.08.76-DT-635396  
A41 B05 E17 (03.12.80) \*BE-857-534 C07c-31/18

Mfr. of a sugar alcohol of formula  $HOCH_2.(CHOH)_n.CH_2OH$  (I) comprises hydrogenating a  $\gamma$ - or  $\delta$ -lactone derived from an aldonic acid of formula  $HOOC.(CHOH)_n.R$  (II) using  $H_2$  over a catalyst contg. Cu oxide. In the formulae, n is 2-5 and R is  $-CH_2OH$  or  $-COOH$ .

The catalyst used is a mixed oxide comprising 20-95 wt.% CuO and 5-80 wt.%  $Cr_2O_3$  and/or  $Al_2O_3$ . The hydrogenation is carried out at 70-200°C.

(I) are used as sugar substitutes for diabetics, as intermediates for vitamins, etc. (I) are obtd. in good yield and can be purified by recrystallisation. 5.8.77 as 032888 (4pp982)

CHIM- D13 12548 A/07 =GB 1580-715  
Sodium saccharin purification - esp. removal of ortho-toluene-sulphonamide by countercurrent extraction with methylene chloride  
CHIMICASA GMBH 02.08.76-LU-075518  
B02 E12 (03.12.80) \*DT2730-861 C07d-275/06

Crude saccharin-in-sodium contaminated by organic substances is refined by using methylene chloride in vertically orientated counter current extn. on a 30-60% aq. crude soln. of crude saccharin-sodium adjusted to pH 3.5-6.0, where the percentages are based on crystal weight.

Pref. the liquids which pass through one another during the countercurrent extn. process are emulsified by intermittently passing them through flow baffle plates.

High purity level is obtd. in an economic manner on an industrial scale. 1.8.77 as 032121 (5pp977)

KURS ★ D13 87190 C/49 ★J5 5135-531  
Fish bait contg. an attractant and PVA foam - hardness, porosity, hot water resistance and foam holding properties can be easily altered  
KURARAY KK 03.04.79-JA-040559  
A97 C03 P14 (A14) (22.10.80) A01k-85

False bait (I) is composed of PVA-type foam which has fine continuous air bubbles of dia.  $< 0.05$ mm. at the



surface and larger continuous air bubbles of dia.  $< 0.10$  mm. inside and also includes fish-attracting agent impregnated in the foam.

(I) is prepd. by combining soluble starch and formalising soln. in aq. PVA-type polymer soln. of concn.  $> 10\text{w/w}\%$ , moulding the mixt. in the form of the desired false bait by heating in moulds and if necessary, impregnating with fish-attracting agent.

False bait gives similar fishing yield as live bait, is easily preserved and can be used repeatedly. By adjusting the degree of polymerisation and the concn. of PVA soln. the false bait has different hardness. The porosity, hot water resistance and form-holding properties of the false bait can be easily changed. It is also possible to prepare the false bait in various forms e.g. as fish, cuttle-fish, etc. and opt. coated with fluorescent paint, etc. 3.4.79 as 040559. (4pp5)

**TOXW ★ D13 87191 C/49 ★ J5 5135-542**  
Prevention of picked vegetable degeneration - by packing in air-tight vessels with oxygen absorbing agent packed in water-impermeable (partly) oxygen impermeable film  
TOYO INK MFG KK 06.04.79-JA-041072  
(22.10.80) A23b-07/10 A23l-01/21

Method comprises packaging pickled vegetables air-tightly in vessels with  $\text{O}_2$ -absorbing agent obtd. by packaging  $\text{O}_2$  absorbent with water-impermeable packaging material which is (partly)  $\text{O}_2$  permeable. Packaging material is polyethylene film or complex film composed of (a) polyethylene and nonwoven fabric, (b) polyethylene-EVA copolymer resin and nonwoven fabric, (c) EVA copolymer and nonwoven fabric, (d) polybutadiene and nonwoven fabric, etc. Complex film (c) is pref. from the viewpoints of film strength,  $\text{O}_2$ -permeability and heat-sealing properties.

Oxygen which is adhered to pickled vegetables and dissolved in pickling soln., is absorbed by the  $\text{O}_2$ -absorbing agent and decomposition of vitamins and pigments in pickled vegetables is prevented. Method partic. prevents fading of chlorophyll in green pickled vegetables and of natural pigments in pickled vegetables. Growth of aerobic microbes partic. moulds in pickled vegetables is suppressed. 6.4.79 as 041072. (4pp5)

**FREU- ★ D13 87192 C/49 ★ J5 5135-545**  
Prepn. of powdered milk e.g. for calves - by combining polyoxyethylene derivs. and sorbitan fatty acid ester(s) of castor oil in oil and fat and dispersing skimmed milk  
FREUND SANGYO KK 12.04.79-JA-043613  
(22.10.80) A23c-11/04

Powdered milk is prepd. by, (a) combining 5-50w/w% of at least one of (i) polyoxyethylene deriv., and (ii) sorbitan fatty acid esters of castor oil or hydrogenated castor oil, in oil and fat; (b) homogenising the mixt. and (c) dispersing it in powdered skimmed milk.

Powdered milk can be easily dispersed homogeneously in water and the substitute milk for calves which has excellent taste and flavour. It can be easily granulated and can be prepd. with simple equipment. Oil and fat is not sepd. 12.4.79 as 043613. (3pp5)

**MEIJ ★ D13 87193 C/49 ★ J5 5135-546**  
Cacao powder prodn. - by heating non-roasted nibs, pressing, treating with alkali roasting and crushing  
MEIJI SEIKA KAISHA 12.04.79-JA-043663  
(22.10.80) A23g-01

Process comprises (a) heating unroasted cacao nibs at a temp. at which they do not form roast flavour; (b) pressing the nibs to an oil content of 10-30w/w% to obtain cacao butter; (c) treating the oil-pressed cacao nibs with alkali; (d) roasting at 120-160°C; and (e) crushing them. At least one monosaccharides such as glucose, fructose, etc. and  $\geq 1$  kind of milk prod. such as skimmed milk, caseinate, etc. or  $\geq 1$  amino acids selected from glycine, alanine, valine, etc. may be combined between (c) and (d).

The flavour in cacao nibs is not lost during the oil-pressing process. In raw cacao nibs oil and fat is included in the soft cells which are not crushed during oil-press-

ing and oil and fat is pressed out from raw cacao nibs with more difficulty than from roasted cacao nibs. By the process raw nibs are first heat-treated at a temp. where flavour is not formed and the flavour in cacao nibs is not lost during the oil-pressing. Cacao butter obtd. is free of cacao flavour and can be combined in chocolate without any deodorising process. 12.4.79 as 043663. (8pp5)

**YAMA- ★ D13 87194 C/49 ★ J5 5135-549**  
Rice flour dough for Japanese confections - involves adding aq. soln. of malic acid, egg white, lysozyme, amino acid and sugar prior to or after steaming  
YAMAZAKI SEIPAN KK 11.04.79-JA-042958  
(22.10.80) A23g-03

Prepn. of dough for Japanese-style confectioneries by kneading rice flour with water, steaming and cooling the mixt. and combining sugar, etc. in the mixt., involves combining an aq. soln. contg. malic acid, egg white, lysozyme, amino acid and sugar in the dough before or after the steaming.

The substances which are present in natural substances and show antibiotic activity in combination, have synergic antibiotic effect on the dough mainly of rice flour without changing the taste and flavour or deteriorating the quality of obtd. Japanese-style confectioneries. Usually the dough is prepd. of rice-flour, water and sugar with the weight proportion of 49:27:24 and malic acid and the lysozyme mixt. (mixt. of egg white, lysozyme, amino acid (e.g. glycine) and sugar) are combined 0.05-0.12% and 0.25-1% on the dough respectively. 11.4.79 as 042958. (3pp5)

**FUKU/ ★ D13 87195 C/49 ★ J5 5135-553**  
Heat-stable whipping agent for use in foods - contains enzymically decomposed collagen protein, stabiliser, dispersant and gelatin  
FUKUDAT 10.04.79-JA-042485  
(22.10.80) A23g-09/02 A23j-03 A23l-01

The whipping agent contains (a) enzymically decomposed prod. of collagen protein, (b) stabiliser, (c) dispersing agent and if necessary, (d) gelatin.

The enzyme collagenase produced by *Bacillus subtilis*, *Aspergillus oryzae*, etc. is used in amt. 40-60w/w% on collagen protein. Decomposition is at 30-40°C for 90-180 mins. The stabiliser glycyrrhizin, liquorice extract, carrageenan, locust bean gum, pullulan, etc., and the dispersing agent is starch, skimmed milk, etc.

The whipping agent gives stable air bubbles and is easy to handle when cold. 10.4.79 as 042485. (4pp5)

**KAYA ★ D13 87196 C/49 ★ J5 5135-554**  
Cattle feed contg. sodium colistin methane sulphonate - which keeps colistin activity high even after feed has been preserved a long time

KAYAKU ANTIBIOTIC RES 12.04.79-JA-043602  
C03 (22.10.80) A23k-01/17 A61k-37/02

Cattle feed contains sodium colistin methanesulphonate (I). Resistance of bacteria to antibiotics has restricted the use of antibiotics as feed additives. Among antibiotics having various advantages colistin sulphate has been used widely for the objects. (I) combined in cattle feed keeps colistin activity high even after the cattle feed has been preserved for long time. (I) is used 2-40 p.p.m. in cattle feed. (I) is mixed with lactose, white sugar, starch, calcium carbonate, kaolin, calcium phosphate, etc. and dispersed in cattle feed material.

Normally preservation of cattle feed contg. colistin sulphate colistin, activity falls due to the bonding of colistin sulphate with components of cattle feed e.g. oil and fat, amino acid, vitamin, mineral, etc. 12.4.79 as 043602. (3pp5)

**SHIB/ ★ D13 87197 C/49 ★ J5 5135-555**  
Fishing bait - comprises amino acid starch, and opt. viscosity increasing agent, e.g. sodium arginate, dextrin, casein etc.  
SHIBATA K 09.04.79-JA-042892  
C03 (22.10.80) A23k-01/18

Fishing bait comprises viscous liq., paste, solid powdery substance prepd. by combining small amt. of aliphatic amino acid and opt. viscosity-increasing agent such as



sodium arginate, dextrin, casein, etc. with starch. The bait can be set to fishing hooks either directly or through the setting medium such as net, pouch, etc., without special skill.

As amino acid, aliphatic amino acid (e.g. glycine, alanine, cysteine, glutamic acid, lysine, etc.) can be used. The bait can be prepd. by combining small amt. of aliphatic amino acid in starch and mixing it with flour, casein, etc. and opt. sodium arginate, dextrin, etc. The starch content in the bait is ~5wt.%. 9.4.79 as 042892. (2pp)

LEMO-★ D13 87198 C/49 ★J5 5135-568  
Water-soluble seasoning compsn. - contains citric acid ascorbic acid, sugar and/or starch and opt. lemon flavour  
LEMON SAN KK 10.04.79-JA-042562  
(22.10.80) A231-01/22

Compsn. contains (a) citric acid, (b) ascorbic acid and (c) sugar and/or starch as and opt. (d) lemon flavour.

The seasoning is water soluble, preservative and not hygroscopic and can be obtd. inexpensively. Usually citric acid (a) is used in amt. of 4-12 fold amt. as ascorbic acid (b). It is desirable to replace 0.01-20w/w% of citric acid (a) with sodium citrate and 0.01-15w/w% of ascorbic acid (b) with sodium ascorbate for making the sourness more similar to natural lemon. 10.4.79 as 042562. (4pp5)

OGAW/★ D13 87199 C/49 ★J5 5135-571  
Improving taste and flavour of fish pastes - by adding glycine and coated ascorbic acid  
OGAWA H 10.04.79-JA-043869  
(22.10.80) A231-01/32

Method comprises adding 0.5-2.5wt.% glycine and 0.02-0.2wt.% (as ascorbic acid) of coated ascorbic acid to the fish paste. Astringency, bitterness and/or prawn-like bad odour are prevented.

It is desirable to combine 8-12C satd. fatty acid monoglyceride in the paste for intensifying the preventive effect on the change in quality. When packaging the pastes in bags 0.02-0.2wt.% coated fumaric acid is pref. also added. 10.4.79 as 043869. (6pp5)

FMCC D13 53460 S/33 = J8 0043-733  
Heat-sterilised artificial milk drink prodn  
FMC CORP 04.02.70-US-008735  
(07.11.80) \*DT104-872 + A23c-09/15 A23g-01

Beverage consists pref. of non-fat milk solids, cocoa, vegetable oil and sweetener, together with  $\leq 75\%$  water. It is stabilised with  $\geq 90$  wt % of 8-1, 4-glucane particles at least 30 wt % of the particles being of size  $\leq 1\mu$ . Opt. Na-CMC may be included. 4.2.71 as 004073 (clg. 4.2.70-US-001818) A23g-1/00, A23c-9/156, (7.11.80) FMC CORP. (3pp) (J46001818)

EZAK★ D13 87584 C/49 ★J8 0043-737  
Coloured artificial meat prepn. - using pigment produced by microorganism of genus *Monascus* and annatto pigment  
EZAKI GLICO 23.04.71-JA-027086  
(D12) (07.11.80) A23j-03

In prepn. of coloured artificial meat, use is made of, as the colouring agents, pigment which is produced by microorganism belonging to the genus *Monascus*, and annatto pigment. 23.4.71 as 027086, A23j-3/00 (7.11.80) EZAKI GLICO (2pp22) (J47039560)

KIMU/ D13 78939 A/44 = J8 0043-738  
Water-dispersible, sterilised protein salt prepn. - by extrn. of defatted soybean and opt. milk casein with acid, adding hydrogen peroxide, drying and neutralising  
KIMURA S 07.03.77-JA-023852  
(07.11.80) \*J53109-967 A231-01/20 + A23j-03

Method comprises (1) extracting rough granular low temp. -defatted soybean and if required milk casein with dilute acid soln. repeatedly, (2) adding aq.  $H_2O_2$  soln. to the extracting residue for absorbing it in the residue, (3) drying the mixt. to the degree that the mixt. can retain its fluidity (4) adding powdery water soluble alkali carbonate to the fluid, the amt. of which is stoichiometric to the acidity and the amt. of the protein in the fluid, (5) mixing them homo-

geneously, and (6) drying the mixt. continuously by microwave heating or by pneumatic conveying drying.

Soybean protein is thus made into a water dispersible protein salt and the protein salt is deodorised, sterilised and swelled by the thermal decompsn. of  $H_2O_2$  at drying. Thus the low temp. -defatted soybean which has been mainly applied as feed, can be made into a food material inexpensively and by combining milk casein in defatted soybean improved proteinous material cf. conventional powdery soybean protein on the market, can be obtd. cheaply. 7.3.77 as 023852, A23j-3/00, A231-1/20 (7.11.80) KIMURA S (2pp5) (J53109967)

FUKO★ D13 87585 C/49 ★J8 0043-739  
Cream-like fat compsn. prepn. - from edible fat, sugar ester, milk and defatted milk, useful e.g. for addn. to coffee  
FUJI OIL KK 00.00.76-JA-127800 (11.03.67-JA-015250)  
(07.11.80) A231-01/19

To edible fat is added 0.2-3.5% of lecithin and 0.1-2.5% of sugar ester, followed by dispersion homogeneously, and to the resulting emulsion fat compsn. is added milk and then defatted milk, followed by emulsifying to obtain an emulsion of O/W type. The resulting emulsion is useful as cream component for coffee, and it can easily be dispersed into coffee. The edible fat and sugar ester may be any of conventional ones, typical example of which is vegetable oil having IV of 50, saponification value of 205, acid value of 0.08, m.pt. of  $32^\circ C$ , for the edible fat, and 'Nitto-ester 1005' for the sugar ester. 11.3.67 as 127800/76, Div.ex. 15250/67, A231-1/19 (7.11.80) FUJI OIL KK (6pp22)

SNOW★ D13 87586 C/49 ★J8 0043-740  
Mfg. easily soluble powdered soybean milk, free from soybean odour - by boiling skinless soybean in organic acid, orthophosphoric acid and water, washing, treating with protease and lactobacilli etc.

SNOW BRAND MILK PRODUCTS (CHOK-) 17.09.71-JA-071820  
(07.11.80) A231-01/20

Soybean without skin is boiled in presence of organic acid, orthophosphoric acid and water, and washed with boiled water. The prod. is acted upon protease and lactobacilli, emulsified and powdered. 17.9.71 as 071820, A231-1/20 (7.11.80) CHOKAI MISO KK & SNOW BRAND MILK PRODUCTS (3pp22) (J48036358)

SNOW★ D13 87587 C/49 ★J8 0043-741  
Soybean curd prepn. - by boiling soybean milk, mixing with casein without filtration, sterilising and coagulating  
SNOW BRAND MILK PRODUCTS 27.12.71-JA-105427  
(07.11.80) A231-01/20

In prepn. of soybean curd from soybean milk, the soybean milk is boiled, and then without filtration, mixed with casein, followed by sterilisation and coagulation. 27.12.71 as 105427, A231-1/20 (7.11.80) SNOW BRAND MILK PRODUCTS. (2pp22) (J48068762)

TAKS★ D13 87588 C/49 ★J8 0043-742  
Flavoured milk prod. prepn. - by allowing microorganism to convert components into natural components  
TAKASAGO PERFUMERY KK 26.11.71-JA-094474  
(07.11.80) A231-01/23

Flavouring components found in milk prod. are materials produced by microorganisms belonging to the genus *Streptococcus*, *Lactobacillus*, *Leuconostoc* and *Propionibacterium*, thereby the components are converted to natural-like ones. 26.11.71 as 094474, A231-1/23 (7.11.80) TAKASAGO PERFUMERY KK (10pp22) (J48058170)

KURE D13 29361 A/16 = J8 0043-756  
Basidiomycetes mycelia prodn. by cultivation - in aq. nutrient medium contg. water-soluble maize extract as growth promoter  
KUREHA CHEM IND KK 16.08.76-JA-097128  
B04 P13 (D16) (07.11.80) \*J53024-089 + C12n-01/38 C12r-01/64

Basidiomycetes of the genus *Coriolus* are cultured in an aq. nutrient medium to which a water-soluble maize extract is added as growth promoter. The yield of Basidiomycetes mycelia, which are used in prodn. of pharmaceut



-icals and health foods is increased.

Cultivation is carried out in conventional aq. nutrient medium comprising carbon source, nitrogen source and necessary minerals. Pref. a nutrient medium comprising glucose and yeast extract is used. Pref. the water-soluble maize extract in the medium is present in amt. 100-5000 ppm, esp. 200-3000 ppm. 16.8.76 as 097128, C12n-1/38, C12r-1/645 (7.11.80) KUREHA CHEM.IND.KK (2pp16) (J53024089)

TEAI= ★ D13 87671 C/49 ★SU-712-071  
Tea concentrate prodn. from low-grade materials - involves extraction with hot water and thermal treatment

TEA IND PROD ASSN 17.02.77-SU-455113  
(30.01.80) A23f-03

Tea concentrate is produced by directly extracting the raw material with hot water, adding sugar to the extract, hermetically sealing and subjecting to thermal treatment at 70-95°C for 10-15 mins. By this method, the technology of the process is simplified; the quality of the product is improved and low grade tea materials can be utilised. The drink is prepd. by diluting the concentrate with water; such a drink has aroma and taste of fresh tea.

Suitable raw materials include low-grade black and green tea; mixt. of coarse fractions of wilted leaves, fermented or partly fermented coarse fractions, or mixts. of the black and green tea, or wastes from the processing of the black and green tea.

Dzneladze, Z. Yu., Kharebava, G. I. and Mameishvili, M. G. Bul. 4/30.1.80. 17.2.77. as 455113 (2pp70)

KIBA= ★ D13 87725 C/49 ★SU-724-113  
Protecting dried lactic acid bacteria during spray-drying and storage - using compsn. contg. dried skimmed milk, sugar beet molasses and sodium glutamate

KIEV BACTERIAL PREP 25.11.77-SU-548629  
(D16) (30.03.80) A23c-09/14

Compsn. protecting lactic acid bacteria in the course of spray drying and during storage, contains dried skimmed milk and a sodium salt. This compsn. is improved by addn. of sugar beet molasses, and by using sodium glutamate as the sodium salt. By this method the yield of the dried product is increased and storage stability is improved. The compsn. contains (in % w.r.t. the dried product) dried skimmed milk 5-10 molasses 0.5-1.0, and sodium glutamate 0.05-0.1.

Tertyshnyi, V. N., Krasnobryzhyi, N. Ya. and Polotnyak, A. D. Bul. 12/30.3.80. 25.11.77. as 548629 (3pp70)

CONF= ★ D13 87726 C/49 ★SU-724-114  
Souffle-type whipped confectionery product - contains boiled sugar syrup, to which mixture of molasses, and white of egg is added, with high speed whipping

CONFECTIONERY IND 02.10.78-SU-669311  
(30.03.80) A23g-03

Method for the prodn. of whipped confectionery masses of the "Souffle" type, by boiling down a sugar syrup with a gel-former to finish with the mass at a temp. of 110-115°C, introducing molasses into the boiled mass plus white of egg, and whipping the final mixture. The process is speeded up and the final quality improved, as a result of excluding denaturation of the egg white, by mixing the molasses and the egg white together before adding them, and then introducing this mixt. to the main mass at 110-115°C. The gel-former is a substance having a gelation temp. between 50 and 90°C, preferably furcelleran and pectin.

Leonteva, G. F., Parfenenko, V. V., Buzina, G. V. et al. Bul. 12/30.3.80. 2.10.78. as 669311 (2pp29)

KDFO= ★ D13 87728 C/49 ★SU-724-116  
Extracting bitter substance from black peppers - using liquid carbon dioxide in first stage, and mixing with edible acid solution, drying, and extracting again

KRASD FOOD IND RES 10.05.77-SU-486585  
(30.03.80) A23l-01/22

Method for extracting bitter substances from vegetable raw materials, e.g. black peppers, by grinding, two-

stage extraction with organic solvents, and distillation of the micelles. More complete extraction results by adding an aqueous solution of an organic food acid, e.g. a 10-15% soln. of lactic, acetic, or citric acid, to the residues after the first extraction stage, mixing, and finally drying the residues to a moisture content of 7-8%.

Pekhov, A. V., Katyzhanskii, A. N., Dyubankova, N. F. et al. Bul. 12/30.3.80. 10.5.77. as 486586 (3pp29)

AUTE= ★ D13 87740 C/49 ★SU-724-183  
Granulation of multicomponent powders - in which granule size uniformity is increased by partial combined mixing and wetting of hydrophobic components, used for animal feeds

AS UKR TEC THERM PH 26.04.77-SU-495964  
J04 (30.03.80) A22c-25/20 B01j-02/10

The process comprises simultaneous wetting and treatment in chambers contg. rotating mixing elements, with subsequent drying.

To increase the particle size uniformity, the wetting time totals 0.4-0.6 fold the mixing time, to give 25-40% wetting.

Typically, a cylindrical chamber has a coaxial rotating shaft with mixing elements made as radial cylindrical bars 8 mm. in dia. and 15mm. apart. Granulation of hydrophobic materials with e.g. 93.54% of the 1.6-1.0 fraction, excludes the formation of a powder fraction. Kremnev, D. A., Satanovskii, A. L., Andronikov, O. V. et al. Bul. 12/30.3.80. 26.4.77. as 495964 (2pp132)

KURE D13 29978 B/16 =US 4234-460  
Ethylene adsorbent of active carbon - treated with metal cpds. to increase capacity

KUREHA KAGAKU KOGYO 22.09.77-JA-114057

E17 J01 (18.11.80) \*DT2840-791 B01d-53/04 + B01j-21/18 B01j-23/70

Novel adsorbent (I) for removing ethylene from a gas contains active C and 0.01-20 wt. % Cu. (I) is obtd. by contacting the active C with Cu or its salt in the presence of HNO<sub>3</sub> and heating the mixt. to 150-900 (pref. 200-700)°C in an inert gas atmos. Pref. the active carbon is added to aq. nitric acid (pref. 0.1-5 N concn.) soln. of a copper salt.

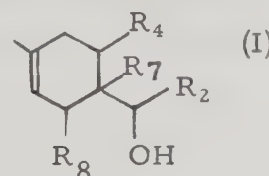
(I) can be used to control the self-maturation of fruits and therefore elongate possible storage time. 12.9.78 as 941681 (5pp918)

INFL ★ D13 88227 C/49 ★US 4234-463  
Augmenting the aroma of perfume compsns. - by addn. of 1-methyl-4-hydroxy-alkyl:cyclohexene deriv.

INT FLAVORS & FRAGR INC 16.11.79-US-095087 (20.10.78-US-953128)

B02 E13 P34 (D18 D21 D23) (18.11.80) A61r-07/46 C11b-09

Aroma of a perfume compsn. is augmented or enhanced by addn. to the perfume base of a cyclohexene deriv. of formula (I):



(R<sub>2</sub> is 2-5C alkyl or alkenyl; R<sub>4</sub> is H, Me or Et; and R<sub>7</sub> and R<sub>8</sub> are H or Me. Provided that (a) R<sub>7</sub> and R<sub>8</sub> are not both H and (b) when R<sub>4</sub> and R<sub>8</sub> are H, then R<sub>7</sub> is Me). (I) may be used in conjunction with an

adjuvant selected from an alcohol, aldehyde, ketone, nitrile, ether, lactone, essential oil or hydrocarbon.

(I) are useful for augmenting the aroma of perfume compsns., perfumed articles and colognes, and also for enhancing the flavour of foodstuffs, chewing gums, tooth-pastes, medicinal prods. and smoking tobaccos, as are the 2-oxabicyclo 2.2.2 octane derivs. derived from (I), as described in US4195100 (Der.25352C). 16.11.79 as 095087 Div. ex 4195100 C.i. p. 4195099 (+16.2.79, 15.6.79-US-012695, 048904) (19pp1248)

FARH D13 18378 B/10 =US 4234-509  
Simultaneous prepn. of fatty acid nitrile(s) and glycerol - by catalytically contacting glyceride(s), esp. natural fats and oils, with ammonia

HOECHST AG 25.03.78-DT-813204 (20.08.77-DT-737607)

E17 (D21 E16) (18.11.80) \*EP-----916 C07c-120



Glycerol and satd. or olefinically unsatd. fatty acid nitriles are simultaneously produced, without isolating intermediates, by treating fatty acid glyceride(s) and gaseous ammonia in the presence of catalysts.

The improvement comprises contacting the liq. glyceride(s) at 220-300°C with a flow of  $\text{HN}_3$  of  $\geq 200$  litres per kg of glyceride per hour in the presence of a metal salt of carboxylic or sulphonic acid. The metal cation is Pb, Cd, Fe, Co, Zn, Sn, Ti, Tr, Cr, Sb, Mg or Ni; and the anion is (un)satd. mono or polycarboxylic aliphatic acid, alkylated benzene or naphthalene carboxylic acid, opt. subst. alkane, benzene or naphthalene sulphonic acid etc.

A prod. mixt. contg. nitriles, glycerol and water is sepd. and subjected to phase sepn. into a nitrile phase and a glycerol/water phase. Pref. starting materials are vegetable and animal fats and oils. 24.4.79 as 032753 (+15.8.78-US-933955) (10pp964)

**RAIS ★ D13 88285 C/49 ★US 4234-604**  
Ruminant feed intake limiting compsn. - contg. meat meal, ammonium phosphate or sulphate and chlorinated fat  
RALSTON PURINA CO 18.12.78-US-970020  
C03 (18.11.80) A23k-01

Feed intake limiting compsn. for ruminants comprises meat meal,  $(\text{NH}_4)_2\text{HPO}_4$  and/or  $(\text{NH}_4)_2\text{SO}_4$ , together with chlorinated fat (I) having 0.2-3.7% reacted Cl. Feed supplement for ruminants comprises grain and (I) having  $\leq 3.7\%$  reacted Cl.

Compsn. is added to a feed supplement. With the ruminant feeds self-rationed feeding is ensured, without waste of feed so that economical and efficient feeding is possible. 18.12.78 as 970020 (8pp1248)

**ICIL D13 37609 B/20 =US 4234-608**  
Chemically hardened animal feed blocks - prepd. using magnesia and dicalcium phosphate which are combined with liq. feed medium

ICIAUSTRALIA LTD 01.11.77-AU-002259  
C03 (18.11.80) \*GB2007-076 A23k-01/16

Mfr. of rigid alkaline, animal feed supplement block comprises (1) heating water, aq. whey, aq. sorbitol, aq. glucose, aq. fructose, aq. sucrose, or molasses to 20-90 (55-80)°C; (2) mixing 5-30 wt. % active  $\text{MgO}$  and 3-50 wt. % dicalcium phosphate (both w.r.t. total block compsn.) with the heated liq. at  $\leq 90$  (45-80)°C to give uniform mixt.; (3) opt. mixing in further water or medicaments or nutrients; and (4) moulding the mixt. at 45-110°C.

Use of  $\text{MgO}$  and dicalcium phosphate as hardening agent reduces mfg. time, permits use of media other than molasses, and if required, permits prodn. of more palatable blocks with lower Mg content. 16.10.78 as 951954(9pp963)

**RICH- D13 57151 A/32 =US 4234-611**  
Food stabilised against microbial decay - contains dextrose and fructose, at least equal sugar and water content and smaller fat content (BE 27.7.78)

RICH PRODUCTS CORP 28.01.77-US-763613 (24.01.78-US-871995)

(18.11.80) \*DT2803-634 A23l-01/18

Microbiologically stable pudding or filling comprises 25-55% water, sugar in a ratio to water of 2-0.8:1, 3-25% fat, and minor amts. of gelling agent, emulsifier, stabiliser and flavouring, provided that the amt. of fat is less than the amt. of water. The solutes content is such that it provides a prod. with water activity of 0.8-0.9, and in the sugar the amt. of dextrose plus fructose is  $\geq 50\%$  (w.r.t. total sugar). The ingredients are adapted to give a prod. which is non-crystalline at ca. 10°F. Pref. compsn. also contains  $< 125$  (2-75) ppm of quinine (bi)sulphate or quinine hydrochloride.

A bacteriostatic intermediate moisture food prod. is obtd. which is ready for use at freezer temp. Use of quinine cpds. reduces the perceived sweetness of the prod. 26.3.79 as 024128 Div. ex 4145863, 4146652 (+24.1.78, 20.6.78-US-871995, 917379) (12pp963)

**PROC ★ D13 88290 C/49 ★US 4234-613**  
Prepn. of non-decaffeinated Robusta coffee - by extn. with a lower alcohol to remove tarry, bitter notes and unpleasant flavour  
PROCTER & GAMBLE CO 30.12.76-US-755924  
(18.11.80) A23f-05/16

Non-decaffeinated Robusta coffee is prepd. as follows: (a) roast and ground Robusta coffee beans (I) are extd. with a 1-3C alcohol (II) for 1-20 min.; (b) (II) is removed from the coffee. Wt. ratio (I):(II) is 2-1:1-5.

Prepd. coffee has an improved aroma and flavour, and lacks the unpleasant tarry, earthy and bitter flavour notes associated with Robusta coffees. In addn., 'culls' may also be improved in aroma and flavour. 30.12.76 as 755924 (5pp478)

**SEVE- ★ D13 88291 C/49 ★US 4234-614**  
Production of masa from grain - by forming slurry, removing husks, grinding kernels cooking and drying  
SEVEN-H CORP 20.11.78-US-962464 (04.10.76-US-729376)  
(18.11.80) A23l-01/10

Corn is processed to produce masa by mixing with water to form a slurry which is pumped successively through several pump stages each having a turbine pump and an impeller raised to provide sufficient clearance so that the grain will pass as a whole kernel. The slurry is centrifuged to remove the water from the grain which is subsequently surface dried. The grain is aspirated to remove the husks. The resulting kernels are cooked.

The process is carried out as described in Parent Patent (87771A/48). The resulting husked grain is steam cooked followed by wet grinding of the cooked kernels. The ground kernels are finally air column dried. 20.11.78 as 962464 Div. ex 4126707 (7pp295)

**KRFT ★ D13 88292 C/49 ★US 4234-615**  
Drainage of large cheese blocks - using V-shaped perforated blade inserted with its apex along cheese axis  
KRAFT INC 01.08.78-US-930055 (13.08.73-US-388101)  
(18.11.80) A23c-19/02

Block of cheese is mfd. by filling a container with particulate curd. A perforated V-shaped blade is located wholly within the curd. This has two side walls which diverge from the apex. Curd is opened by the two diverging walls. Pressure is applied to the curd and liq. is drained away through the blade. Blade is removed and the curd reknits to provide a cheese of uniform texture and moisture. Apex of the blade is located along an axis of the container. Blade provides at least 3 sq. inches of perforated area per linear inch of blade length. All of the perforated area of the blade is positioned in the half of the blade closest to the apex. Curd is opened by the blade by a max. distance of 4 inches.

Appts. is used to mfr. 700 lb. blocks of cheese such as Cheddar, Washed Curd, Stirred Curd, Colby, Brick, Muenster and Mozzarella. 1.8.78 as 930055 C.i.p. 3969952 (+14.7.76-US-705104) (11pp295)

**INFL ★ D13 88293 C/49 ★US 4234-616**  
Enhancing flavour with di- or tri-alkyl-di:hydro furanone(s) - for used in caramel, butterscotch, rum, vanilla foodstuffs etc.

INT FLAVORS & FRAGR INC 03.08.79-US-063561 (27.07.78-US-928606)

E13 (18.11.80) A23l-01/22

The taste or aroma of caramel, butterscotch, rum, dairy, vanilla or roasted almond-flavoured foodstuffs is enhanced by addn. of 0.1-50 ppm of a mixt. contg. (by wt.) 10-40% (I), 5-20% (II), 10-30% (III), and 5-20% (IV):



The mixt. is useful for augmenting or enhancing the sweet, brown sugar, pineapple-like, caramel, buttery, scorched butterlike, dried hazelnut and earthy aroma and sweet, brown sugar, pineapple-like, caramel, buttery, cheese-like, roasted, vanilla-like, dried hazelnut and earthy tastes of a variety of foodstuffs and foodstuff flavouring compsns. 3.8.79 as 063561 (31pp478)



**CMZ D13 89838 B/50 =US 4234-618**  
 Compsn. contg. confectionery hard butter - useful as partial replacement for cocoa butter esp. in chocolate formulations  
 SCM CORP 05.06.78-US-912639  
 (18.11.80) \*EP--6-034 A23g-01 + A23d-05 C11c-03/12  
 Lipoidal compsn. comprises 15-40 pts. cocoa butter (I); 10-25 pts. butterfat (II) where the total amt. of (I) and (II) is  $\leq 40$ ; and 60-85 pts.wt. of confectioner's hard butter (III). (III) has the following characteristics: (1)  $\geq 96\%$  16-18C triglycerides with 40-50 wt. % of total combined acids being unsatd. acids in trans-configuration, the remainder also being unsatd. and in the cis form; (2) an SFI profile of 78-85% at 50°F and at 70°F; 70-80; at 80°F; 31-45% at 92°F;  $\leq 3\%$  at 100°F and 0 at 110°F; and (3) a Mettler Dropping point between 36-39°C.  
 Prod. is useful in confectionery, and may be used to replace cocoa butter. 5.6.78 as 912639 (7pp963)

**ASAHI D13 53262 B/29 =US 4234-619**  
 Egg powder with reduced cholesterol and fat content - produced by freeze or spray drying, then contacting with di:methyl ether  
 ASAHI KASEI KOGYO 16.11.77-JA-136678  
 (18.11.80) \*J54070-469 A23i-01/28  
 Decholesterolised and defatted egg powder is claimed contg.  $< 5\%$  of the original cholesterol contained in the whole egg or yolk and  $< 5\%$  of neutral fat originally contained in a whole egg or yolk, no foreign solvent, and  $\geq 30\%$  phospholipids based on total amt. originally present in yolk or egg. The egg powder is prepd. by removing moisture from the whole egg or yolk to give moisture content  $\leq 25$  wt. % and then extracting with dimethyl ether.

The egg proteins are not denatured by the treatment and thus the egg retains the normal properties of raw egg. Solvent can be effectively removed avoiding any toxicity problems. 3.11.78 as 957594 (8pp963)

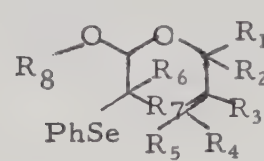
**STALEY D13 50263 C/29 =US 4234-620**  
 Increasing water solubility of vegetable protein - by subjecting aq. dispersion of protein to pressure and cavitation cycling under slightly alkaline conditions  
 STALEY A E MFG CO 26.12.78-US-973195  
 (18.11.80) \*EP--13-093 A23j-03

Water-solubility of a vegetable protein prod. is improved by (a) supplying aq. vegetable seed feedstream to a homogeniser, the stream contg.  $\geq 30$  wt. % vegetable. Seed protein (dry solids basis) and sufficient base to maintain stream at pH 6.5-9.0 in the homogeniser; and (b) subjecting the stream to successive pressure and cavitation cycling at 50-150°C to increase protein solubility. Pref. pH is 7.0-8.0.

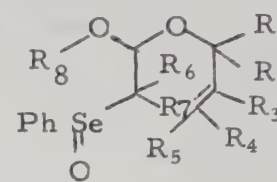
Pref. the seed protein is soy protein. Pref. wt. ratio of water to seed protein (dry substance basis) is 9-15:1 and temp. ranges from 85-120°C. The homogeniser is pref. a centrifugal homogeniser.

Prods. having higher NSI values may be obtd., and vegetable proteins which simulate functionality of milk protein may be obtd. 26.12.78 as 973195 (9pp963)

**FIRM ★ D13 88342 C/49 ★US 4234-741**  
 Benzene selenenyl acetal derivs - useful as intermediates in stereospecific synthesis of flavourant trans-gamma, delta-unsatd. ester s)  
 FIRMENICH SA 30.08.78-CH-009136  
 E17 (18.11.80) C07c-51 C07c-163  
 Acetals (IV) and (V) are new cpds.:



(IV)



(V)

(where  $R_1-R_7 = H$  or alkyl;  $R_8 = \text{alkyl}$ ).

(IV) and thence (V) are intermediates in a new high yield stereospecific synth. of a variety of trans- $\gamma$ ,  $\delta$ -unsatd. esters (and hence acids) which are known flavouring agents (See details). 16.8.79 as 067025 (5pp478)

See Also

D15 J8 0043363  
 D16 J5 5135587  
 D17 GB 1580440

D15 SU 729137  
 D16 SU 729241  
 D23 GB 1580683

D16 DS 2161164  
 D16 US 4234691

## D14: FOODSTUFF MACHINERY

**KONZ- ★ D14 86411 C/49 ★BE-884-511**  
 Gravity flow separator to clean peas for canning etc. - makes good peas bounce over obstacles which trap waste and reject peas  
 KONZERV PAPRIKAIPAR 28.07.80-BE-884511  
 (17.11.80) A23n  
 Machine comprises one, or several superimposed, gravity flow cleaning unit(s).

A mixt. of peas and waste is fed down an inlet throat to fall on to a rebound plate set at a predetermined angle to the horizontal. Each good pea bounces off the rebound plate to follow a trajectory which carries it over a dropout gap followed by a vertically adjustable barrier. The pea drops into an exit for good peas or on to a chute leading to the exit.

Waste material and reject peas do not generally bounce high enough to clear the dropout gap and those that do are directed back by the barrier.

The width of the feed throat is pref. adjusted so that the layer of mixt. directed on to the rebound plate has a thickness of approx. one pea.

The cleaner is pref. mutli-stage with reject material from stage one entering the inlet throat of stage two and so on.

Cleaning peas ready for processing for canning, freezing etc. The cleaner has to remove pieces of pod, leaves, stalk, weeds, stones, soil, insects, moth grubs etc. also deformed and poor quality peas. 28.7.80 as 884511 (21pp)

**GEES/ ★ D14 86418 C/49 ★BE-884-561**  
 Cage like container for cheese during ripening - has narrow ribs curved for round cheeses improving air circulation considerably  
 GEESINK BT 06.08.79-NL-006005  
 P13 Q32 (17.11.80) A01j B65d

The ribs of a container for holding a cheese during the ripening process have at their inner faces a breadth of 1-3 mm. The container is formed by a central ring from which the ribs curve outwards and upwards to the points where they are secured to a second ring. Some ribs form parts of support plates for the containers which may be assembled at least in pairs.

The containers may be used for the pickling process also, and they ensure a much better circulation of air, esp. from below. The cheeses acquire mechanical strength due to drying much more quickly, and the ribs leave no marks on the skin. 31.7.80 as 884561 (9pp1014) (F1)

**WESER ★ D14 86482 C/49 ★DT 2920-083**  
 Frozen food cutting press chamber - with U-shaped walls joined by seams welded along short sides  
 WESER AG 18.05.79-DT-920083  
 (27.11.80) A22c-25/20

A press chamber in a welded design for cutter presses in the food industry, specially for cutting frozen fish meat is a rectangular cavity which guides a piston for heavy-duty loading. The chamber walls have been machined from the solid to a U-shaped and are joined to each other by welds along the centre of the short sides of the rectangle. Strong ribs lengthwise and crosswise reinforce the chamber.



This removes the welds from the corners of conventional press chambers where experience has shown the existence of weak points leading to premature failure. 18.5.79 as 920083(8pp39)

**STRA- ★ D14 86494 C/49 ★DT 2920-364**  
Distortion and contact free determ. of foodstuff fat concn. factor - uses irradiation with soft X-ray or gamma rays and measures inelastic and elastic radiation dispersions

GES STRAHLEN & UMWE 19.05.79-DT-920364

**K08 S03 P31 (S05) (27.11.80) A61b-06 G01n-23/22 G01n-33/02**  
Determination system is intended for continuous, or intermittent, testing of organic and/or inorganic substances of lower concentration factor number. It is particularly suitable for quality checking of meat and other food products, especially for determination of their fat, oil and/or water contents. The tested substances are irradiated by a soft X-ray, or gamma radiation.

Irradiation produces inelastically and elastically dispersed radiation, both these radiation components being separately measured. The ratio of both components is representative for the lower concn factor number. Preferably the tested substances form a multi-component system and the effective concentration factor number is determined by the radiation ratios. The determination may be used both for industrial or medical purposes in a device containing a highly collimated 241-Am-source and a pure Ge detector with an energy resolution of 190 eV at 5.9 keV. The device contains an amplifier and a multi-channel analyser. 19.5.79 as 920364(15pp391)

**DELP/ ★ D14 86921 C/49 ★FR 2449-485**  
Size grading sorting machine for round fruits - conveys fruits along gravity discharge gap of increasing adjustable width

DELPEUCH R 20.02.79-FR-004610

**P43 (24.10.80) A23n-15 B07b-13/07**

The fruits are conveyed longitudinally by a flat belt inclined laterally at 20° to the horizontal. The fruits are initially prevented from rolling off the lower side edge of the belt by a sizing rail (A) supported in a plane at 90° to the plane of the conveyor belt.

The spacing between the sizing rail and the belt leaves a gap which increased progressively in the direction of belt travel. Smaller fruits escape through the gap before larger fruits. The gap angle and width are adjustable. 20.2.79 as 04610(6pp448)

**AUFF/ ★ D14 86929 C/49 ★FR 2449-584**  
Semi-trailer tanker to transport bulk fluids - esp. animal feed, lowers centre of gravity to enhance stability and increase capacity

AUFFRET J 28.12.78-FR-036691

**Q15 Q22 (24.10.80) A23k-01 B60p-03/22 B62d-53/06**

The tank is carried on a chassis comprising parallel, longitudinal beams joined by transoms pref at right angles to the beams. A supporting cradle suspends part of the tank inside the chassis so that the centre of gravity of the loaded tank is well below that of a conventional tanker in which the tank sits on top of the chassis.

Used as a semi-tailer tanker for transporting bulk feed for farm animals or for carrying other bulk fluids.

For a given volume or transported fluid the centre of gravity is reduced to give greater stability in transit. For comparable stability it is possible to increase the vol. transported by raising the level in the tank by between 40mm and 700mm. 28.12.78 as 036691 (8pp448)

**FUKU/ ★ D14 87598 C/49 ★J8 0043-816**  
Appts. for producing livestock feedstuff - comprises composite feed hopper, additive hopper, mixer, gate and scraper knife

FUKUHIRO Y 16.03.78-JA-030827

**(08.11.80) A23n-17 B01f-03/18 B01f-15/04**

Appts. comprises (a) a composite feed hopper, (b) an additives hopper, (c) a mixer for mixing feed with additives, (d) a gate is attached to the feed hopper's chute to precisely regulate the supply flow rate of the feed and (e) a scraper knife for regulating the flow rate of the additives.

16.3.79 as 030827 B01f-3/18.15/04. A23n-17/00 (8.11.80)

FUKUHIRO Y (5pp26) (J54123476)

**AIRP D14 42761 W/26 #NL-165-544**  
Cryogenic flash freezing tomatoes and fruit - in conveyor tunnel with downstream spray and upstream cold gas recirculation

AIR PRODUCTS & CHEM INC 11.06.65-US-463196 (20.09.67-NL-012839)

**Q75 (17.11.80) \*CA-968-981 F25d-03/10**

Freezing section of the tunnel of a high speed deep freezing plant, in which a cryogenic fluid is sprayed on the goods, is sepd. completely from the cold gas circulating system of the two precooling sections. Inside each pre-cooling section, above the conveyor belt, close to the underside of the tunnel, a horizontal baffle plate extending practically to the ends of the section, divides them into two compartments. Feed and a return channel for the cold gas are thus formed. In the lower channel the cold gas is blown across the goods moving through and pre-cools them. At the one end of each precooling section a fan is placed and each section is partly closed at this end by a vertical baffle which leaves only room for the goods to pass through against the flow of cold gas from the vapourised fluid in the freezing section.

At the other end of the precooling sections some distance from the end of the baffle plate, the upper zone is closed by a curved guide plate which turns the gas flow. At the inlet end, a hinged section on the guide plate forms an adjustable outlet valve.

Arrangement ensures uniform precooling of the goods and circulates the cold gas using the min. of energy. 20.9.67 as 012839 (7pp1014)

**SIAG= ★ D14 87705 C/49 ★SU-718-676**  
Fodder drying drum loader - has staged chute, with each stage made as perforated pipe

SIBE BR AGRIC SCI 14.08.78-SU-659595

**Q76 (28.02.80) A23n-17 F26b-11/04**

The fodder drying drum loader contains a staged chute situated in the housing between the drum and combustion chamber and pressure air duct for cold air.

In order to increase the loader operational reliability and to supply the loader construction, each stage of the chute is made as a perforated pipe and is connected to the pressure air duct. The pipe perforation has a cross-section, which gradually increases in the direction towards the lower stage. When the compressor is switched on cold air under pressure flows through the air duct to the perforated pipes. The air is divided into even streams directed towards the fodder mass being dried. The fodder is fluidised and flows to the drying chamber. Vagonov, S.P. Bul. 8/28.2.80. 14.8.78. as 659595 (2pp)

**SHOS= ★ D14 87727 C/49 ★SU-724-115**  
Gelatin broth cooker with steam-jacketed body - has spraying mechanism on rotatable frame, and internal perforated cylinder, plus heaters and vibrator

SHOSTKA SVEMA MFG 25.09.78-SU-667783

**X27 (30.03.80) A23j-01/10 C09h-03**

Apparatus for cooking gelatin broths, has body and steam jacket, and an internal cylinder. The distribution of the broth over the entire volume of the body is guaranteed, together with mean temp. level, by fitting a closed circulation system having shut-off equipment, pump, heaters and spraying mechanism mounted on a frame suspended by rollers. The top part of the body contains guides for the rollers in form of closed rings. The cylinder goes the whole height of the body and has perforations, and the frame is installed so that it can rotate. It also consists of the tubes by which the broth is conveyed to the sprayers.

Voronoi, V.G., Eremanko, Yu.I., Demskii, B.M. et al. Bul. 12/30.3.80. 25.9.78. as 667783 (3pp29)

**NONB= ★ D14 87812 C/49 ★SU-728-830**  
Fodder mixer monitoring appts. - has peripheral measuring electrodes which receive signals depending on the degree of homogeneity

NONBLACK ZONE AGRIC 09.01.79-SU-709987

**S03 T06 (26.04.80) A23n-17 G01n-27/02**

Earlier monitor for the quality of fodder mixts. in agri-



culture contains a mixer motor control and a measuring circuit with electrodes. For more accurate monitoring of mixt. homogeneity, the measuring circuit is an h.f. signals generator connected to one electrode at the centre of peripherally arranged electrodes which are connected via correcting resistors and amplifiers to a comparator for the motor control. An 0.9-0.95 homogeneous mix is produced automatically in about 10 min.

Chernyshov, V.O., Livshits, L.S., Guseinov, V.I. Bul. 15/25.4.80. 9.1.79. as 709987 (3pp840)

**AAGR=★ D14 87886 C/49 ★SU-729-094**  
Pelleting press for animal feedstuff - has circular die, with inner pressing roller and toothed disc forcing material into radial channels for extrusion

ARMN AGRIC MECHAN 22.08.77-SU-518577  
P71 (28.04.80) B30b-11/20

Pelleting press, for making animal feedstuff, has circular die inside which a pressing roller is disposed and connected to a drive mechanism. Operational reliability is increased, as a result of increasing the holding capabilities, by fitting the pressing roller with toothed disc the diameter of which, is greater than that of the roller. A circular slot is made on the inside of the die into which the disc is placed. The material being pelleted is supplied to the internal space of the circular die. The combination of inner roller and toothed disc causes the material to be pressed into the radial channels, from where they emerge on the outside and are removed. Productivity is increased by 20-30% compared with known equipment.

Makaryan, S.E., Musaelants, G.G., Arutyunyan, V.A. Bul. 15/25.4.80. 22.8.77. as 518577 (2pp29)

**CONS/ D14 72242 B/40 =US 4233-892**  
Spit roasting appts. - includes water wheel having system to balance any eccentricity of the meat being roasted

CONSTANCE R J 22.03.78-ZA-001681  
P28 (18.11.80) \*GB2016-909 A47j-37/04

Spit roasting appts. includes a rotatable water wheel driving a spit and having spaced water-receiving troughs around its periphery, and a mechanism automatically compensating for eccentricity in the mass distribution of meat carried on the spit.

Water is pref. pumped from a sump below the wheel to a feed conduit discharging onto the wheel and with a flow control including an adjustable valve in a recycle conduit leading from the feed conduit to the sump, or a float in a control vessel within the sump and controlling a valve in the feed conduit. 26.2.79 as 015066 (11pp1358)

**NEST D14 22068 B/12 =US 4234-537**  
Batch steriliser for particulate food or pharmaceutical prodn. - for aseptic transfer to cans without subsequent sterilising

SOC PROD NESTLE SA 23.12.77-GB-053759

B07 P34 (18.11.80) \*BE-870-561 A231-03/16 A611-02/06

Particulates are batch sterilised by pressurised steam in a rotating tumbler vessel. A small amt. of lubricant liq. is added with the particulates and a further amt. is added under pressure at a temp. above that of the particulates and the normal boiling point of the lubricant but below its boiling point in the vessel. The liqs. and particulates are held at the sterilising temp. during tumbling.

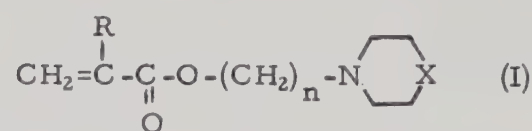
Pref. the lubricant is H<sub>2</sub>O and is recycled, or is oil, on an emulsion of oil and H<sub>2</sub>O. Damage to particulates is reduced. 17.5.78 as 906775 (5pp1376)

**ASTR D14 72730 A/41 =US 4234-565**  
Acrylic polymers with pH dependent solubility - useful for enteric coatings for ruminant feedstuffs or therapeutic agents

ASTRA CHEMICAL PROD 04.04.77-SW-003901

A14 C03 (A97) (18.11.80) \*BE-865-654 A61k-09/32

Particles coated with a layer of polymer having pH dependent solubility characteristics in aq. media are prep'd. by polymerising the polymer from (a) methylmethacrylate, (b) > 1 monomer of formula (I) or CH<sub>2</sub>=C(R)-COO(CH<sub>2</sub>)<sub>m</sub>-NR<sub>1</sub>R<sub>2</sub> (II) (where R is H or CH<sub>2</sub>; X is -CH<sub>2</sub> or O, n is 1 to 4, R<sub>1</sub> and R<sub>2</sub> are H, CH<sub>3</sub>, ethyl, (iso)propyl, isobutyl, t-butyl or n-butyl; but R<sub>1</sub> and R<sub>2</sub> are not both H, m



is 1 to 4; and (c) > 1 monomer of formula R<sup>3</sup>-O-OC-C(R)=CH<sub>2</sub> (III) where R<sup>3</sup> is 1-18C opt. branched alkyl, R<sup>4</sup> is H or CH<sub>3</sub>.

(I) is 30-50 mole % of monomer charged, (II) is 20-30 mol. % of monomer charged, (III) is 0.5-6.0 mole % of monomers charged. The polymer N content is 2.5-3.3%. The polymer is insoluble at > pH 5 but water permeable at pH 3. The coated particles are feedstuffs for ruminants such as protein, amine acids which because of the coating are able to by pass digestion by microorganisms in the rumen stomach and are released only in the renin stomach. 2.3.79 as 016815 (+3.4.78-US-892869) (7pp937)

See Also

D15 DS 2821365

## D15: WATER TREATMENT

**BELV/★ D15 86405 C/49 ★BE-884-476**  
Plant for purificn. of waste water by aeration and clarification - comprises vertical cylindrical tank contg. annular aeration chamber around central decanter

BELVEAL RE 26.07.79-US-060844  
Q24 (17.11.80) B63j C02f

The installation is contained in a vertical cylindrical tank which can be in metal, plastic or concrete.

Centrally the tank contains a coaxial, cylindrical clarifier unit which comprises a decanting section on top of sedimentation zone. An annular aeration chamber takes up space between the clarifier unit and the tank wall.

Within the aeration chamber, diffuser boxes in the base are supplied with compressed air which bubbles up to form a rising current. This current is given a helical twist by angled baffle(s) on the outside of the clarifier unit.

Following treatment in the aeration chamber, water is transferred over a weir into the clarifier unit where sludge settles out for disposal in the sedimentation zone.

Clarified water rises for top discharge from the decanting section, optionally via a chlorinating unit the base of the tank. 25.7.80 as 884476 (32pp448)

**EBNO★ D15 86408 C/49 ★BE-884-496**  
Introducing oxygen into water having an oxygen insufficiency - by immersing receiver contg. liquid oxygen to release gas

EBNOTHER M AG 08.08.79-CH-007259

Q32 (17.11.80) B65d C02f

The process comprises putting into it at least one receiver contg. liquid oxygen, the oxygen being liberated from the immersed receiver. A receiver which is used on the process is made at least partly of a water-soluble material.

The process is used for treating water which has become starved of oxygen. It is simple, cheap, causes no disturbance of the environment, is easily regulated, and is very efficient. 25.7.80 as 884493 (9pp597)

**CENN★ D15 86419 C/49 ★BE-884-563**  
Treating aq. effluents contaminated with tritium - by treatment in isotopic exchange column contg. carrier catalyst with Gp/VIII metal, dry mixed with hydrophobic binder, esp. PTFE

STUDIECENTREM VOOR 31.07.80-BE-884563

A97 E36 K08 (17.11.80) B01d C01b

In a process for the sepn. of tritium from aq. effluents, an isotopic exchange column is used contg. a catalyst com-



prising carrier particles carrying  $\geq 1$  gp. VIII metal, dry mixed with a hydrophobic material which is opt. a binder to bind the carrier particles together. The aq. effluent is passed through the column in counterflow with a stream of gaseous hydrogen so that isotopic exchange occurs to give a stream of low-tritium hydrogen at one end of the column and a tritium-rich aq. phase at the other. The tritium-enriched aq. material is subjected to electrolysis and the hydrogen released is led into the column. A tritium-enriched aq. material is removed from the electrolyser.

Catalyst gives improved sepn. of tritium from aq. effluents in comparison with prior art catalysts of this type. 31.7.80 as 884563 (12pp513) (F1)

RIGH/ ★ D15 C/49 ★ BR 7902-949  
Waste water purification system for natural or artificial pools  
RIGHETTI G 14.05.79-BR-002949  
(18.11.80) C02f-07

COKE ★ D15 C/49 ★ BR 7903-016  
Extraction of theobromine and caffeine from cocoa pods  
COCA-COLA CO 16.05.79-BR-003016  
E13 (18.11.80) C07d-473/10

DEGM ★ D15 C/49 ★ BR 8001-642  
Aeration tank for purifying active sludge - of domestic or industrial waste water  
DEGREMONT SA 23.03.79-FR-007354  
Q42 (18.11.80) E03f-05/26 E03f-11 19.3.80 as 001642

STUD/ ★ D15 C/49 ★ CS 6303-318  
Sediment-contg. industrial aq. effluents purificn.  
STUDNICNY J 08.06.63-CS-003318  
(29.08.80) C02f-01

MALI/ ★ D15 C/49 ★ CS 7804-934  
Organo-mineral fertilisers - based on farm animals excrement  
MALIK V 25.07.78-CS-004934  
C04 (29.08.80) C05f-03

HUSE/ ★ D15 C/49 ★ CS 7806-586  
Liquid cpds. gravitational separator  
HUSER K 11.10.78-CS-006586  
(29.08.80) C02f-01/40

HOTA/ ★ D15 C/49 ★ CS 7808-188  
Aeration of organic waste materials - ensuring mesophilic and/or thermophilic aerobic stabilisation  
HOTAR Z 11.12.78-CS-008188  
(29.08.80) C02f-03

KORI/ ★ D15 C/49 ★ CS 7900-169  
Liquids purificn. and treatment by ion-exchange filtration  
KORINEK M 08.01.79-CS-000169  
J01 (29.08.80) C02f-01/42

RUML/ ★ D15 C/49 ★ CS 7900-318  
Purificn. of ammonium cpds. contg. aq. effluents - formed during metals surface treatment  
RUML V 15.01.79-CS-000318  
(29.08.80) C02f-01/58 C02f-09

DEGS D15 05717 W/04 = DS 2334-766  
Emulsion breaking compsn. for industrial water treatment - contg. a flocculant in addition to absorbant and emulsion breaker  
DEGUSSA 09.07.73-DT-334766  
A97 (27.11.80) \*BE-817-399 + C02f-01/56  
Waste water contg. water insoluble organic material, esp oil, fat and solvent, in emulsion is treated with an emulsion breaking agent comprising 20% aluminium chloride, 5% calcium oxide 1% hydrophobic silicic acid and 74% kieselguhr together with an organic water soluble macromolecular flocculating agent such as starch, polyacrylamide or polyacrylate. The insoluble organic material forms a phase of pasty to solid consistency which is separated. Oil-in-water emulsions from metal working may be so treated. 9.7.73 as 334766(5pp068)

UNVO D15 72317 W/43 #DS 2543-297  
Cleaning membrane exchange device - using a plug flow of air-entrained droplets

UOP INC 26.03.74-US-454883 (27.09.75-DT-543297)  
J01 + P43 (27.11.80) \*US3912-624 B01d-13

The membrane surface of a membrane sepn. appts is cleaned rapidly after use by first partly filling with water the median diffusion channels of the membrane and then flushing with a gas stream at a velocity that causes the water droplets to carry over and to hit against the membrane surface to remove accumulated material. This work action is repeated until all accumulated material and all water droplets are removed from the membrane surface without a drying stage being necessary for the membrane. The membrane sepn. appts. may be used to recover protein and lactose from milk, etc. 27.9.75 as 543297(2pp068)

NITY D15 79695 X/43 = DS 2614-021  
Regeneration and recovery of exhausted active carbon - from activated sludge effluent-treating process by heating sludge under specific conditions NL061076)  
NITTETU CHEM ENG 04.04.75-JA-040417  
(27.11.80) \*DT2614-021 + C02f-01/28 C02f-11/10

Powdered spent active carbon, which has been used in an activated sludge process to adsorb impurities and accelerate the biological oxidation, is regenerated and recovered. The mixt of spent active carbon and sludge obtd. is dehydrated and as a moist powder continuously passed through a spray nozzle into the upper part of a regenerating oven. Auxiliary burners in the oven produce high velocity combustion gases at 850-950°C and with a residual oxygen concn of less than 2 vol. % which mix vigorously with the carbon-sludge particles for 0.3-5.0 seconds after which the regenerated carbon and gases formed pass through a tube directly into water. Since the sludge has decomposed to gases. The water containing suspended carbon may be recycled to the activated sludge process. 1.4.76 as 614021(5pp068)

KURK D15 86474 A/48 = DS 2821-365  
Pulp dewatering system - in chamber with revolving perforated filter disc shafts

KURITA WATER IND KK 16.05.77-JA-055273 (16.05.77-JA-055272)  
J01 (D14) (27.11.80) \*DT2821-365 + B01d-25/18

A filter for dewatering sludge material, is a tank with two lines, each of several (five) horizontal cylindrical filter elements which revolve in the same direction, i.e. anticlockwise in the top line and clockwise in the bottom line. Each filter element is assembled from a stack of filter discs, made of stainless steel, separated by discs of smaller diameter. Holes in the filter discs near the smaller discs are overlapped by the meshing discs of the adjoining filter element. The filter elements are driven at a speed which is reduced towards the discharge.

Such a filter eliminates any risk of the outlet holes in the filter discs becoming clogged. 16.5.78 as 821365(11pp39)

STAH/ ★ D15 86444 C/49 ★ DT 2911-975  
Sewage aeration basin - with revolving drum and partitions with unsymmetrical cover plates for better oxygen absorption

STAHLERT 27.03.79-DT-911975  
(02.10.80) C02c C02f-03/06 C02f-07

Anaeration basin for sewage consists of an open tank with a semicylindrical bottom in which a horizontal polygonal drum revolves. The drum has six or twelve radial partitions. Each partition carries on its face end two cover plates, leaving slotted openings between the plates of adjacent partitions. The lagging plate (in the direction of rotation) is shorter than the leading plate and points downward at the moment of emergence.

Such a hollow drum requires less power for rotation and achieves a better oxygen introduction efficiency by retaining the trapped air bubble longer. 27.3.79 as 911975 (18pp39).



**JLL- ★ D15 86462 C/49 ★DT 2919-656**  
 metered carbon dioxide injection - by continuous sampling and  
 using analyser to adjust metering valve  
 FULLPACK WIELAND D 16.05.79-DT-919656  
 E36 T06 (27.11.80) A231-02/26 B01f-05/04 C02f-01/68  
 plant for the continuous control of the injection of carbon  
 dioxide in a liquid such as a beverage is based on an injector  
 with a nozzle fed with the liquid, and a vacuum chamber con-  
 nected to a carbon dioxide source. A sampling cylinder is  
 connected to an automatic CO<sub>2</sub> analyser which controls a  
 metering valve in the carbon dioxide supply.  
 This requires only a small sample to determine the CO<sub>2</sub>  
 content. The control quality is so good that the fluctuations  
 of the CO<sub>2</sub> content are held within  $\pm 0.07-0.08$  vol.%.  
 16.5.79 as 919656(11pp39)

**PROV ★ D15 86500 C/49 ★DT 2920-405**  
 Nuclear power station waste water system - divided into several  
 grouped water circuits for recycling or disposal  
 BROWN BOVERI & CIE 19.05.79-DT-920405  
 K06 (27.11.80) G21f-09/04  
 System is split into several, pref. four, water circuits, de-  
 pending on the degree of radioactive contamination and the  
 degree of possible retention. Each circuit has its own clean-  
 ing plant and recirculation system where a decision is made  
 whether to recirculate the effluent or to pass it into a dispos-  
 al plant for liquid or gaseous disposal.  
 The result is an optimum utilisation of the industrial  
 water. The pollution of the environment by immission is  
 minimised so that nuclear power stations are not confined  
 any more to the coastline or to large river sites. 19.5.79  
 as 920405(16pp39)

**BEGO- ★ D15 86533 C/49 ★DT 2920-921**  
 Deposit-free transport of wax contg. liquid - by injecting coolant to  
 produce turbulence  
 BEGO BREMER GOLDSCH 23.05.79-DT-920921  
 P32 (27.11.80) A61c-17/02 C02f-01/40  
 A hot mixture of a liquid with fatty substances (wax), deriv-  
 ed from flushing out the wax from plaster casts in the manu-  
 facture of artificial dentures is transported free from depo-  
 sits by cooling the mixture and at the same time producing  
 an intense turbulence. This causes the wax to become pre-  
 cipitated in the shape of fine droplets which run off the walls  
 without forming any deposit.  
 This prevents any clogging of the pumps or the pipe sys-  
 tem even when no emulsifiers have been added to the liquid.  
 23.5.79 as 920921(17pp39)

**KRUN ★ D15 86550 C/49 ★DT 2921-351**  
 Radioactive resin filter sampling - by lowering plunge cylinder and  
 vacuum extraction of sample  
 KRAFTWERK UNION AG 25.05.79-DT-921351  
 K07 (27.11.80) G21f-09/12  
 Samples are taken from the filter bed of a synthetic resin  
 filter, which is used for the purification of radioactive  
 waters, by remote control. A plunger cylinder is lowered in  
 the filter bed by a stream of fluid (deionised water) which is  
 ejected from the annulus of two concentric hoses. On rea-  
 ching the desired level, a vacuum is applied to the central  
 hose and a sample of the resin is sucked into a collecting  
 flask.  
 This creates a solution for the sampling problem to check  
 the efficiency of a resin filter in retaining radioactive fission  
 and corrosion products, without exposing the operator to  
 any radiation risk. 25.5.79 as 921351(15pp39)

**MEYE- ★ D15 86565 C/49 ★DT 2925-170**  
 Radioactive waste filtration process - by filtering through a layer  
 comprising polyethylene or polypropylene fibril filtration aid  
 compacting and melting the polymer  
 MASCH MEYER AG 14.05.79-CH-004448  
 A88 J01 K07 (27.11.80) B01d-37 G21f-09/04  
 In a process for removing particles with radioactive com-  
 ponents dispersed in water by filtration through a filter  
 layer (I) and then compacting the filter residue (II) and  
 (I), (I) comprises mainly a thermoplastic polymer which is  
 water wettable but is practically insoluble and non-swelling

in water and with a m.pt of 100-300°C. (I) and (II) are com-  
 -pacted by heating and at least partially melting the poly-  
 mer.

Transformation of the residue into a form for storage  
 is simplified. 22.6.79 as 925170(10pp952)

**SOMA- ★ D15 86575 C/49 ★DT 3010-902**  
 Refuse shredder - with scoop in pulp chamber deflecting pulp flow  
 SOMAT CORP 16.05.79-US-039643  
 P41 (27.11.80) B02c-18/40 B02c-19  
 A refuse shredding plant includes a revolving shredding  
 tool which produces a pulp. This passes through a screen  
 into a pulp chamber in which a scoop deflects the pulp into  
 an opening in the pulp chamber wall. The scoop has a  
 rounded front edge and protrudes only with that part into  
 the pulp chamber.

This shredder operates with a high efficiency because the  
 scoop does not obstruct the flow. Solids cannot damage any  
 moving parts. 21.3.80 as 010902(17pp39)

**PASE D15 10245 B/06 =EP G000-467**  
 Sewage grid cleaning rake - is guided positively in upward direction  
 by erected toggle lever  
 PASSAVANT MICHEL BACHER 28.07.77-DT-734119  
 Q42 (26.11.80) \*EP----467 C02f-01/40 E02b-08/02  
 D/S: E(CH, FR, GB, NL)

A bar screen in a sewage treatment plant is cleaned by  
 a rake on a carriage which is moved from a disengaged  
 position during the down stroke to an engaged position dur-  
 ing the up stroke by a toggle lever. The rake is support-  
 ed on the carriage by swivelling levers and the toggle  
 lever is hinged at one end on the carriage and on its  
 other end on the swivelling lever. The straight-line posi-  
 tion of the toggle lever corresponds to the engaged, and its  
 jack-knife position to the disengaged state of the rake.

This exerts an adequate force at the bottom of the  
 stroke for the change from disengaged to engaged position  
 and allows an up stroke only when fully engaged. 1.6.78  
 as 100039 (11pp39) (G)

**STAHL/ D15 86444 C/49 =EP --17-064**  
 Sewage aeration basin - with revolving drum and partitions with  
 unsymmetrical cover plates for better oxygen absorption  
 STAHLERT 27.03.79-DT-911975  
 (15.10.80) \*DT2911-975 C02f-03/08  
 D/S: E(BE, CH, DT, FR, GB, IT, LU, NL, OE, SW)

An aeration basin for sewage consists of an open tank with  
 a semicylindrical bottom in which a horizontal polygonal  
 drum revolves. The drum has six or twelve radial parti-  
 tions. Each partition carries on its free end two cover  
 plates, leaving slotted openings between the plates of ad-  
 jacent partitions. The lagging plate (in the direction of  
 rotation) is shorter than the leading plate and points down-  
 ward at the movement of emergence.

Such a hollow drum requires less power for rotation  
 and achieves a better oxygen introduction efficiency by re-  
 taining the trapped air bubble longer.  
 17.3.80 as 101387 (-pp39)  
 (G) ISR:—

**BOEK/ D15 89369 B/49 =EP --18-971**  
 Acidity and ion concn. control process streams - using ionic sensors  
 to produce a binary control word for regulating release of reagent  
 BOEKE J 28.04.78-US-900908  
 J04 T01 (26.11.80) \*WP7900-998 G06f-15/46 + C02f-01/66  
 D/S: E(CH, DT, FR, GB, SW)  
 16.4.79 as 900433

**SULZ ★ D15 86697 C/49 ★EP --19-055**  
 Water treatment filter - with agitators and baffles in standing water  
 above filter bed for better flocculation  
 GEBRUDER SULZER AG 21.05.79-CH-004720  
 (26.11.80) B01d-35/22 C02f-01/52 C02f-03/08  
 D/S: E(DT, FR, GB, IT, NL, OE).  
 A filter plant for water treatment consists of a granular



filter bed resting on a perforated plate and of at least one agitator in the water retained above the filter. The agitator is controlled by a turbidity sensor at the inlet. A number of baffle plates is arranged to minimize circulatory currents.

This improves the uniform distribution of the water and prevents premature deposition of flocks, produced by the addition of flocculants, by a delayed power input. 19.2.80. as 101400. (17pp39).  
(G) ISR: GB1496191; DT1917059; US2404215; US2585808; FR1105659; BE-482853; DT1792409.

MITQ ★ D15 86722 C/49 ★EP--19-143  
Water recovery from moist atmospheric air - by adsorption on pad then conversion to steam which is condensed to give water  
MITSUBISHI ELECTRIC CORP 03.07.79-JA-085671 (09.05.79-JA-057766)  
Q42 (26.11.80) C02f-01/18 E03b-03/28

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

Atmospheric air is drawn through an adsorbent pad by a fan. After the pad has adsorbed a predetermined amount of water from the air dampers are operated to discontinue the air flow. Instead hot air is recirculated through the pad to convert the water into steam. The steam-laden air is then drawn through a condenser which produces water.

A practical apparatus has two similar pads which are operated out of phase. The fan which draws air through one pad is used to cool the condenser of the other pad while it is being heated.

The apparatus can be located in a desert to provide water from moist atmospheric air, it is compact and this reduces friction losses in the air passageways.

29.4.80 as 102317 (58pp295).

(E) ISR: FR-817110; FR2377834; FR2386650; DS-731471.

BADI D15 84695 C/48 =EP--19-175  
Dewatering of sludge - by treating with organic flocculating agent and maturing before filtration

BASF AG 19.05.79-DT-920434

(26.11.80) \*DT2920-434 C02f-11/14 + C02f-01/54

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

The dewatering characteristics of sludges are improved by treating the sludge with an organic flocculating agent and maturing the mixt. for 0.5-3 mins., esp. 1-2 mins. in a mixer using an energy input of 0.005-0.5 watt/litre, esp. 0.01-0.2 watt/litre.

The maturing stage gives optimum flock formation and improves the dewatering characteristics of the sludge in subsequent sepn. processes such as gravity or pressure, filtration, centrifuging, etc. The dewatered sludges are useful e.g. for soil improvement or as a combustion fuel.

5.5.80 as 102421 (27pp513).

(G) ISR: DT1936805; US4046684; US3660284.

BADI D15 84687 C/48 =EP--19-176  
Dewatering of clarifier sludge - by treatment with flocculating agent, gravity filtration and filtration in a filter press

BASF AG 19.05.79-DT-920350

(26.11.80) \*DT2920-350 C02f-11/12 + B01d-25 B01d-37

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

Clarifier sludge is dewatered by first treating it with an organic flocculating agent, then removing the greater part of the water by gravity filtration of the flocculated sludge without application of a pressure difference. The sludge is finally dewatered by filtration in a chamber filter press in the usual way.

The gravity filtration stage allows removal of the greater part of the water without destroying the physical structure of the flocculated material. The resulting concentrated sludge can then be dewatered in a filter press without addn. of filter aids such as sand, ash or lime which are necessary in prior art single-stage sludge dewatering processes.

5.5.80 as 102422 (20pp513).

(G) ISR: DT1916701; DT1936805; DT2732018; DT2653823; DT2603074; 1 Journal Reference.

LIND

D15

84591 C/48 =EP--19-203

Treatment of effluent water - contg. heavy loading of nitrogenous and organic cpds., involves two-stage nitrification and denitrification

LINGENS & SOHNE (LINM) 10.05.79-DT-918950

(26.11.80) \*DT2918-950 C02f-03/30

D/S: E(BE, DT, GB, NL).

A two-stage process is used for nitrification and denitrification of effluent water which is heavily loaded with organic and nitrogenous materials. The input water to both stages is divided. The overflow from the first stage is passed to the second stage and active sludge is recovered from the output from each stage and is recycled to the respective stage.

At least the second stage comprises a zone with low oxygen conditions followed by a zone with oxygen-rich conditions, with internal feed-back between the zones. The feed to the low oxygen zone of the second stage comprises the overflow from the first stage after removal of the active sludge, together with 25-50 % of the original effluent water.

Process allows improved (> 90%) removal of N cpds. together with organic cpds.

7.5.80 as 102493 (18pp513).

(G) ISR: DT2809094; DT2616212; DT2233801; DT2454526 DT2354383.

STER ★

D15

86746 C/49 ★EP--19-211

Purification of aqueous fluid - by contact with gas in which plasma is generated by focussed laser radiation

STERLING DRUG INC 22.05.79-US-041526

P34 (26.11.80) A611-02/14 C02f-01/32

D/S: E(BE, DT, FR, GB, NL).

Water contaminated with micro-organisms or having a chemical oxygen demand (COD) is purified by contact with a gas. A plasma is generated within the gas by focussed laser radiation. When the water has a COD, the gas must contain oxygen. Other suitable gases include nitrogen, argon, helium, neon or carbon dioxide. Pref. the laser radiation before focussing has a wavelength in the UV, visible or IR spectral region. It may be obtained from a CO<sub>2</sub> laser of 9.2-10.6 μm wavelength.

The process may be used to purify drinking water, or for the treatment of waste water, e.g. secondary effluent from a sewage treatment. The process obviates the addition of chemicals which may produce undesirable tastes or odours.

8.5.80 as 102517 (16pp295).

(E) ISR: US3955921; US3941670; FR2322830; DT2636094; FR2382928; 1 Journal Reference.

FARB ★

D15

86749 C/49 ★EP--19-214

Polyurethane foam prodn. contg. reactive filler - obtd. by modifying microbial biomass, esp. activated sewage sludge

BAYER AG 21.05.79-DT-920527

A25 (26.11.80) C02f-11 C08g-18/64 C12n-11/08

D/S: E(BE, DT, FR, GB, IT, NL)

Prodn. of opt. cellular polyurethane foam (I) comprises polyaddition of (a) a polyisocyanate; (b) opt. low and/or high mol.wt. cpds. with H atoms reactive with isocyanates; (c) reactive organic fillers (A) and (d) opt. blowing agents, catalysts and other additives.

The new feature is that (A) is a microbial biomass (or its derivs. or decomposition prods.) which has been denaturated and rendered odourless by reaction with isocyanates and/or reaction with carbonyl cpds. and cpds. capable of forming aminoplasts and/or phenoplasts.

The method is esp. applied to activated sludge from sewage works. The modified (A) is sterile, easily filtered; dried without excessive heat requirements and is storage stable. A previously useless material can now be used as an effective filler for polyurethanes.

8.5.80 as 102521 (105pp1251).

(G) ISR: US4021368; FR2314195; FR2314196; DT2208644; DT2410693; US2976465; DT2413137; EP--10243.



**FARB ★ D15 86751 C/49 ★EP--19-216**  
 Accelerating sedimentation in waste water treatment - by adding distn. residue from tolylene diisocyanate mfr.  
 BAYER AG 21.05.79-DT-920526  
 A41 C04 E14 (26.11.80) C02f-01/54 C02f-11  
 D/S: E(BE, DT, FR, GB, IT, NL).

Sedimentation of organic and/or inorganic solids during mechanical and/or biological clarification of waste waters is accelerated by adding an insoluble residue (I) remaining after distn. of monomeric tolylene diisocyanates from a crude prod. obtd. by reacting tolylenediamines with  $\text{COCl}_2$ . (I) is added in powder form (ave. particle size < 2mm), opt. after chemical modification of its functional gps.

Addn. of (I) accelerates sludge settling, facilitates sludge dewatering by filtration and/or centrifugation (using reduced amts. of flocculant), and produces a dewatered sludge with improved incineration properties. The dewatered sludge can also be used for fertiliser mfr.

8.5.80 as 102523 (39pp367).  
 (G) ISR: GB-411702; FR2236010.

**MECA- D15 84614 C/48 =EP--19-248**  
 Trickling sewage treatment drum plate - composed of four quadrants of plastics foam  
 MECAPEC SA 12.05.79-DT-919244  
 A88 (26.11.80) \*DT2919-244 C02f-03/08

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

A partly immersed trickling drum for biological sewage cleaning systems has each of the parallel discs on the horizontal drive shaft subdivided into four quadrants. Groups of the same quadrants are assembled into sectors which are inserted in the drum structure, spaced from each other by a network of ribs on the quadrants. The novel features are that the surface of the discs is of a plastics foam (esp. expanded polystyrene) and has ribs and grooves to carry the biologically active agent.

The drum can be broken down into units which cause no transport problems. Its assembly is also greatly simplified thereby. The great active area and low weight of the discs are other good features.

10.5.80 as 102602 (27pp39).

(G)ISR:-

**STAM D15 85611 C/48 =EP--19-326**  
 Purification of urea-contg. effluent water - by heating at elevated temp. and pressure to hydrolyse urea and recover ammonia and desorption zones

STAMICARBON BV 09.05.79-NL-003623  
 A41 C04 E16 (26.11.80) \*NL7903-623 C02f-01/28 C07d-251/60

D/S:- E(BE, DT, FR, GB, IT, NL, OE, SW).

Urea-contg. effluent water is subjected to elevated temp. and pressure to cause hydrolysis of the urea. The purification is carried out in combination with the sepn. of pure  $\text{NH}_3$  and pure  $\text{CO}_2$  from mixts. of these, opt. with water, in a  $\text{NH}_3$ -sepn. zone, a  $\text{CO}_2$  sepn. zone and a desorption zone, the effluent water being added to one of these zones.

The process gives purified water contg. only traces of  $\text{NH}_3$ ,  $\text{CO}_2$  or urea. The purification may be carried out as an integral part of a urea- or urea and melamine prodn. unit so that the  $\text{CO}_2$  and  $\text{NH}_3$  are recycled directly into the process.

5.80 as 200404 (29pp513).

(E)ISR:- US4163648; US3922222; US4087513;  
 DT2616054; FR2056850; FR1600495; GB1129939;  
 FR2093882; FR1541273; FR2001269; US4120667;  
 FR2013682.

**COFR ★ D15 86881 C/49 ★EP--19-552**  
 Waste waters purification from hydrocarbon - with anionic polyelectrolyte addition in waters prior to filtering  
 CIE FRANCAISE RAFFINAGE (NALC) 15.05.79-FR-012307  
 A97 J01 (26.11.80) B01d-37/02 C02f-01/54  
 D/S: E(BE, DT, GB, IT, NL, SW).

Industrial and/or waste waters are purified from hydro-

carbons by filtration through a filter(s) comprising a granular material, the process comprising a filtration phase followed by a counter-washing phase with water to remove impurities retained in each filter. The novel feature consists in adding an anionic polyelectrolyte to the water to be purified, prior to its passage through the filter.

The polyelectrolyte improves the efficiency of the filter and allows a larger amt. of hydrocarbons to be recovered from the filter.

14.5.80 as 400681 (16pp950).

(F) ISR: US3623978; FR1431152; FR1443626; DT1926623;  
 FR2377830; US3171802; US3687845; US3802917;  
 FR2277777; US4128477; US3408292; DT2249607.

**INST- ★ D15 86935 C/49 ★FR 2449-658**  
 Purificn. of aq. effluent - using bacterial bed and activated sludge, ensuring sufficient transfer of oxygen from first to second stage  
 INST NAT RECH CHIM 20.02.79-FR-004298  
 (24.10.80) C02f-09

Combination of a bacterial bed treatment and an activated sludge treatment is used. A sufficient transfer of  $\text{O}_2$  from the 1st to the 2nd stage is ensured and an intimate contact with the microorganisms which are kept activated. The operating conditions of the 2nd stage are regulated and maintained as a function of the input and consumption of oxygen.

The process enables an increase in purificn yield of about 10% compared with the bacterial bed above and an energy consumption hardly greater than that of the bacterial bed alone. 20.2.79 as 004298(9pp597)

**INSP D15 88264 Y/50 =GB 1580-345**  
 Ultra pure water prepn. - by vaporising, passing to superheated zone and condensing

INST PASTEUR 15.06.76-FR-018150  
 (03.12.80) \*BE-855-600 +C02f-01/04

Water is highly purified by heating, passing the steam to a superheating zone which at least partly has a packing of silica, for supplementary heating to at least  $300^\circ\text{C}$ ., pref.  $500-700^\circ\text{C}$ . then condensing the steam. To obtain maximum apyrogenicity and minimum organic substances content a superheating zone 50 cm. long and for 1 ml. water has a dwell time of 0.05-0.2 min. at  $400-700^\circ\text{C}$ .

The superheater may have internal or external heating, pref. by a tungsten filament surrounded by a transparent fused silica jacket. For an internally heated superheater the exterior is pref. gold plated for good thermal insulation. The prod. pref. has a solids content after freeze drying of less than 0.1 mg./litre. 15.6.77 as 025014 (9pp1358)

**AUTO- D15 82885 Y/47 =GB 1580-395**  
 Treating aqueous effluent by the activated sludge process - using partially immersed rotating biological contactor

AUTOTROL CORP 12.05.76-US-685723  
 (03.12.80) \*BE-854-524 C02f-03/18

Wastewater treatment comprises forcible aeration, rotating a biological contactor immersed in the aeration tank, and recycling activated sludge to the tank. The method promotes and supports growth on the contactor of a filamentous highly-active and efficient biomass including organisms normally present in the sludge as well as those typically present on a contactor.

The contactor pref. rotates in response to normal motion of fluid in the tank, and part of the air normally delivered to the aerator can opt. be used to assist rotation or to provide rotation where there is little wastewater movement. 6.5.77 as 019142 (8pp1358)

**SUND/ D15 08677 A/05 =GB 1580-659**  
 Domestic septic tank - with scum forming pump and blower for putrefaction tank

SUNDBERG H M 23.07.76-SW-008391  
 Q42 + P28 (03.12.80) \*DT2732-613 +A47k-11/02 C02f-01/24

Waste mater is treated in a composting closet by conveying deposited matter by a liquid flow to a container in which it is triturated and dispersed. At least part of the liq. flow is then caused to pass a farther and the froth with waste



particles in the bubble walls is passed into a composting compartment separate from the container for aerobic digestion.

The liquid is pref. drawn from the container by a pump and discharged to the frother, and then to take up deposited waste for conveyance to the container. Pump flow direction may be reversed to draw air into the container to create froth in the upper region. 19.7.77 as 030167 (7pp)

DEGM D15 79842 Y/45 #GB 1580-733  
Waste water purificn. via anaerobic biological filter - for denitrification of water after activated sludge treatment

DEGREMONT SA 07.01.76-FR-000219 (18.11.71-FR-041292)  
(03.12.80) \*FR2337-576 + C02f-03/28

Wastewater is purified by passing through an immersed biological filter having a granular bed, each granule having limited surface zones for fixation and preservation of a bacterial film which withstands strong repeated backwashing, and a main surface which is smooth for easy backwash removal of bacteria.

The filter is kept anaerobic during filter and backwash flow to allow elimination of nitrogenous pollution of the wastewater. Water fed to the filter is pref. deoxygenated in a closed tank with a stirrer and an assimilable carbon feed. The filter is pref. washed at intervals with oxygen-contg. water. 10.6.77 as 024380 Add. to 1399515 (4pp)

SAKA/ ★ D15 87030 C/49 ★ J5 5075-719  
Filter for separating fluid into components - has tubular body enclosing two discs located on either side of mesh bundle

SAKAIS 01.12.78-JA-147811

J01 P15 (07.06.80) A24d-03 B01d-46

Device for filtering a fluid flowing in a pipe into two or more components is described. Two or more components may be gases and liqs. (in partic., water and air). It may be used for sepg. a fluid such as waste waters contg. air bubbles into water and air, since we have a two-port device, and also to degas water. 1.12.78 as 147811. (2pp)

NICF ★ D15 87066 C/49 ★ J5 5084-505  
Solid-liquid phase sepn. of mud water - includes addn. of aluminium poly:chloride and sodium polyacrylate and opt. zinc salt  
NIPPON CEMENT KK 19.09.78-JA-114087  
A97 E33 (25.06.80) B01d-21/\* C02f-01/52

The sepn. of mud water into solid and liq. phase includes addn. of aluminium polychloride (I) and sodium polyacrylate (I). The total amt. of (I) and (II) is pref. 0.05-1.0wt.-% of the mud water so that the pH of the mud water is adjusted and the solid particles are aggregated and pptd.

The amt. of aluminium-polychloride is  $\leq 40\text{wt.}\%$  and  $\geq 10\text{wt.}\%$  of the total amt. of (I) and (II). Amt. of sodium polyacrylate is  $\geq 60\text{wt.}\%$  and  $\leq 90\text{wt.}\%$  of the total amt. of (I) and (II).

The polymerisation degree of the sodium polyacrylate is pref. 20,000-100,000; pH adjusting agent and a zinc salt can be added to the mud with aluminium polychloride and sodium polyacrylate. In the latter case, the amts. are 10-40wt.%, aluminium polychloride 60-80wt.% sodium polyacrylate and 1-20wt.%, a zinc salt (based on the total mixt.). 19.9.78 as 114087. (5pp55)

HITA ★ D15 87067 C/49 ★ J5 5084-507  
Controlling ph and alkali degree in water under purification - by controlling pouring rate of alkali agent until ph value reaches that specified

HITACHI KK 22.09.78-JA-115907  
(25.06.80) B01d-21/34 C02f-01

Method is for controlling the content of an alkali agent and agglomerant poured into a raw water to be purified in a water purificn. plant. The pH of the treated water is regulated by pouring the alkali agent and agglomerant and the degree of alkali of this water is controlled for their respective set points, without consuming the alkali agent, excessively. When the deviation between the set point of either the alkali degree or pH and actual value exceeds a threshold, an estimated value that will be obtd. upon lapse of a time after pouring the alkali agent at specified rate is

calculated. Then, the pouring rate of the agent is controlled so that the estimated value becomes equal to the set point. 22.9.78 as 115907. (5pp26)

KATA- ★ D15 87069 C/49 ★ J5 5084-509  
Waste gas dust collector wash water - contg. addn. of specific polymeric scale dispersing agent(s) and chlorine ions for recycling  
KATAYAMA KAGAKU KOG 19.12.78-JA-157027  
A97 J01 M24 (25.06.80) C02f-05/04 C23f-14

Waste gas dust-collected water obtd. after flocculation-sedimentation treatment, and having pH 9 is processed so that the treated water has chlorine ions (pref. as NaCl or sea water) in amts. of  $> 2,000$  p.p.m., pref. 10,000-40,000 p.p.m. and  $> 4$  times, pref. 8 times as that of Ca hardness, so that scales formation in recirculating or transporting conduits or pipes is suppressed.

In a modification, if necessary scales-dispersing agent(s), e.g. homopolymer of acrylic acid, copolymers of acrylic acid, phosphonic acids and phosphonocarboxylic acids, etc. may be used in combination with the chlorine ion in amt. of 0.1-20.0 p.p.m.

The characteristic of this process is that scales formation is effectively suppressed in recycling or transporting system by maintaining chlorine ion concn. in the treated water. Very hard water with high Ca salt content can be treated by the above method. 19.12.78 as 157027. (5pp34)

SHOW- ★ D15 87181 C/49 ★ J5 5135-187  
Floor cleaning agent prodn. from aluminium sludge - by neutralising waste water from aluminium anodic oxidn., drying and heating to form granular prod.

SHOWA KOKI KK 11.04.79-JA-043093

G04 M14 (21.10.80) C09k-03/32

Cleaning agent is produced by neutralising (1) waste water formed by treating Al (alloy) prod. subjected to anode-oxidn. with acid or alkali for the purpose of removing foreign matters adhered to the surface of the Al (alloy) prod., filtering and drying the sludge by-produced, heating the sludge and thereby making it granular.

The waste water causing pollution is treated and the sludge is used efficiently. The cleaning agent having a small apparent specific gravity is easily transported. The cleaning agent is scattered on the surface of dirty floor. In one minute, the cleaning agent is gathered with a broom. Matter is adsorbed by the cleaning agent, and the floor is cleaned easily. 11.4.79 as 043093. (3pp136)

TOKE ★ D15 87293 C/49 ★ J5 5136-10  
Ozone feed rate control - by regulating ozone production rate in single ozoniser so that sum of flow-rate setting signals corresp. to outlet flow-rate

TOKYO SHIBAURA ELEC LTD 11.04.79-JA-043805

E36 J03 (23.10.80) B01d-53/34 C01b-13/11 C02f-01/78

Method for controlling the feed-rate of ozone to n utilisations for treating organic waste waters, decolouring coloured waste waters and pasteurisation is claimed. The aim is to optimally control the feed-rate to each utilisation even when its load changes. The novelty is in that the ozone prodn. rate in a single ozoniser is controlled so that the sum of the ozone flow-rate setting signals in the utilisations corresponds to the outlet flow-rate of the ozoniser. A controller is provided for providing the setting signals and control signal for controlling the ozoniser prodn. rate, depending on the total flow-rate at the outlet of the ozoniser and densitometers for metering the concn. of impurities in the drains from the utilisations. 11.4.79 as 043805. (3pp26)

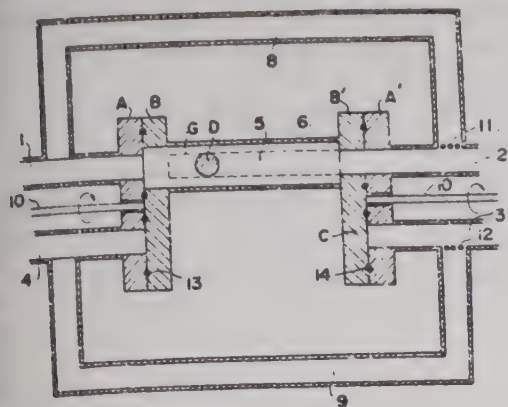
EBAI ★ D15 87485 C/49 ★ J5 5137-0  
Appts. for washing membrane in waste water filter module includes washing sponge ball feeder-collector

EBARA INFILCO KK 10.04.79-JA-043217

(25.10.80) B01d-13

Appts. comprises a washing sponge ball feeder, collector connected to module through a feed line (2) and collectin





line (3). The object is to remove easily dirt from the surface of the membrane. A tube (6) is inserted between the inlet of the line (2) and outlet of a raw liq. feed line (1) through rotary shutters at both ends of the tube. Each shutter has a rotary disc having openings allowing the

balls to pass through, when aligning with the opening of the tube. Both shutters are rotated so as to open and close alternately two routes: one from the line (1) to line (2), and the other from the line (3) to line (4) for draining the dirt. 10.4.79 as 043217. (6pp26)

**NISR- ★ D15 87486 C/49 ★ J5 5137-010**  
 Separator for oil contaminated water - has clean water feed branch line connected to upstream of main pump via auxiliary pump  
 NIPPON SRS KK 16.04.79-JA-045251  
 (25.10.80) B01d-17/02

Separator for oil contaminated water comprises a vertical tank connected to a dirty water feed line through a check valve and to a water drain line through a main pump and precision filters (if necessary). To effectively separate the oil, without atomising it, a clean water feed branch line is connected to the upstream of the main pump through an auxiliary pump. In the oil sepn. section, a valve connected to an upper end port of the tank is closed, the check valve is opened, and the pump operates to reduce the internal pressure in the tank to separate the oil effectively due to gravitational effect and drains the sepd. water until the oil reaches the level at which an oil detector is located. Then, the other pump operates, to drain the oil through the second valve. 16.4.79 as 045251. (4pp26)

**MITM ★ D15 87487 C/49 ★ J5 5137-011**  
 Lower cost flocculation of waste water - by the addition of stannic chloride

MITSUBISHI MOTOR CORP 16.04.79-JA-045280  
 (25.10.80) B01d-21/\*

A waste water (I) is flocculated by the addn. of 0.05-0.25-wt. % stannic chloride (II).

Suspended materials in (I) are initially removed by flocculation by the addn. of inorganic flocculants, cpds. e.g. Al, Fe, Ca, Ti and other metals, as in prior art. Oil-suspensions do not separate but must be removed by adsorption onto e.g. active C or other adsorbent, resulting in high cost. The use of (II) reduces the treatment-cost remarkably. The amt. of (II) consumed can be reduced by adding polymer coagulant to (II). 16.4.79 as 045280. (3pp42)

**HITB ★ D15 87488 C/49 ★ J5 5137-012**  
 Moving bed type filtering process for waste water - where portion of filter medium is passed through regenerator tube located above moving filter bed

HITACHI CHEMICAL KK 11.04.79-JA-044746  
 (25.10.80) B01d-33

The process is effected using a filtering tank contg. a granular filtering medium such as sand to form a moving bed, through which the raw water such as dirty water or waste water flows upward, while the medium is moved downward by continuously taking out its dirty portion. The object is to easily wash a dirty portion of the medium after use.

The taken portion of the medium is passed through into a filtering medium regenerator tube located above the bed to separate into dirty water and cleaned medium. This medium is dropped into the tank to form a continuous zone with the bed, while a part of a filtrate water in the tank is made to rise up over the upper face of the medium in the tube to wash the medium in the tube and the produced dirty water is removed. 11.4.79 as 044746. (4pp26)

**HITB ★ D15 87489 C/49 ★ J5 5137-013**  
 Water filtration by upward passage through granular medium - where medium is washed in portions using reduced amt. of treated water

HITACHI CHEMICAL KK 13.04.79-JA-045595  
 (25.10.80) B01d-33

A method for filtering water such as waste or dirty water in a moving bed of a granular filtering medium such as sand is claimed. The bed is formed in a tank and the raw water flows upwards through the bed, while the medium is taken out little-by-little and fed back to the upper opening of the tank through a regenerating tube located above the tank. The medium is washed with a filtrate water from the tank through its upper opening. The object is to reduce the water required for washing the medium, relative to the filtration rate.

The filtrate water is raised up over the upper surface of the medium fed into the tube to wash it, and the produced dirty water is removed from the tube. The difference between the surface levels of the filtrate and produced dirty waters is varied depending on a signal from a meter for metering the turbidity of the filtrate water. 13.4.79 as 045595. (4pp26)

**NIEN- ★ D15 87491 C/49 ★ J5 5137-015**  
 Liq. filter e.g. for effluent - comprises tank, filter unit mounted on hollow rotary shaft and wash liquor casing

NIPPON ENVIRO KOGYO 10.04.79-JA-043779  
 (25.10.80) B01d-33/24

Appts. comprises a tank, a filter unit mounted on a hollow rotary shaft mounted horizontally in the tank, and wash liq. case disposed above the tank.

Improvement is that the case is connected to the tank to pour a washing liq. into the tank due to the head difference between the liqs. in the case and tank. A suction means is connected to the hollow shaft to apply a pressure to the filter unit consisting of porous hollow base members mounted on the shaft and filtering cloths, each laid on the member.

Liq. is effectively filtered, without using pressurising means. 10.4.79 as 043779. (3pp26)

**EBAR ★ D15 87492 C/49 ★ J5 5137-016**  
 Aq. waste filtering device - has arrangement below filtering elements to control raw water flow into tank

EBARA MFG KK 11.04.79-JA-043734  
 (25.10.80) B01d-29/24 B01d-37/02

Device is used for filtering aq. waste. It comprises a vertical tank having raw water inlet and drain outlet at the lower end, filtrate outlet at the upper section, and a gp. of filtering elements in the middle part of the tank. The object is to improve filtering performance and increase the filtering rate.

A structure is disposed below the gp. of the filtering elements to rectify the flow of raw water fed into the tank to the elements. Two or more plates are located horizontally between the inlet and the rectifier structure to disperse the water flowing into the elements. The structure may be a grid lattice. 11.4.79 as 043734. (3pp26)

**HITA ★ D15 87493 C/49 ★ J5 5137-017**  
 System for water purificn. plant filter operation - operates according to raw water supply feed-rate and includes calculation units and parameter setting unit

HITACHI KK (HITJ) 16.04.79-JA-045330  
 (25.10.80) B01d-37/04

System for washing filters operates according to the feed rate of raw water supplied to them. The filters are installed in respective filtering ponds in a water purificn. plant. Each pond is provided with a pump for draining sludge water after washing the filter. The object is to determine the time of washing the filter for optimal operation.

The wash period of the filter is determined, based on the feed rate of raw water. Based on the wash period, the wash start timing is determined for each filter and the pump start timing is determined. To determine above period and timings, a calculator and calculation units are



combined with a feed rate meter and parameter setting unit. 16.4.79 as 045330. (3pp26)

**MITU ★ D15 87519 C/49 ★ J5 5137-082**  
Treating waste soln. contg. surfactant - by acidifying mixing with anion exchange resin, sepg. oil and water phases, and removing aggregated substances

MITSUBISHI CHEM IND KK (MITU CHUG) 13.04.79-JA-044956  
(25.10.80) C02f-01/42

Method comprises adjusting pH of waste soln. contg. a surfactant to  $< 2$  of pH, mixing the resulting adjusting soln. with an anion exchanging soln. to obtain a mixed soln., settling the mixed soln. to separate a water phase from an oil phase, adding aggregating agent to the sepd. water phase to obtain aggregated substances, and removing the aggregated substances from the water phase. The anion exchanging soln. is aliphatic amine having 10-28C aliphatic gp.

In an example, a waste soln. used in cutting process was adjusted with  $H_2SO_4$  to pH 2 to obtain a pH adjusted soln. 10% of 10-24C alkylamine was mixed with kerosene to obtain an anion exchanging soln. The anion exchanging soln. was added to the pH-adjusted soln., and stirred to separate a water phase from an oil phase. 1000 p.p.m. of aluminium sulphate used as an aggregating agent was added to the sepd. water phase to obtain aggregated substances. The aggregated substances were removed from the water phase to obtain pure water. 13.4.79 as 044956. (4pp51)

**NIPC ★ D15 87521 C/49 ★ J5 5137-084**  
Treatment of waste water contg. water glass etc. - includes reaction with slurry of slightly soluble calcium cpds.

NIPPON CHEM IND KK 11.04.79-JA-043111  
(25.10.80) C02f-01/52

Treatment of Glaut waste water includes treatment with slurry contg. slightly soluble Ca materials and capable of releasing Ca ion, e.g. of  $CaO$ ,  $Ca(OH)_2$ , cements, calcined dolomites. The mol. ratio ( $CaO/SiO_2$ ) is  $\geq 0.5$ , pH  $> 8.5$ . The mixt. is then flocculant, and ppte. sepd.

Active colloidal silica particles, fine free calcium silicate particles and/or silicic ions in Glaut waste water (waste water from civil works using Si materials such as water glass) are reacted with Ca ion made from soluble Ca materials to produce coarse and precipitable particles of calcium silicide at an appropriate pH.

The introduction of  $CO_2$  gas after completion of the reaction causes more preferable results because the growth of silic calcium and the neutralisation of the water is attained. 11.4.79 as 043111. (5pp168)

**HITB ★ D15 87522 C/49 ★ J5 5137-085**  
Phosphoric acid-contg. waste water purificn. - using inorganic flocculant injector and fluidised bed filter with filter washing unit to remove phosphate ppte.

HITACHI CHEMICAL KK 10.04.79-JA-043832  
E36 (25.10.80) B01d-35 C02f-01/52

A treatment of waste water contg. phosphoric acid is by, adding inorganic flocculant to form insoluble phosphates, then filtering the resultant through fluidised bed type filter with device for washing continually small size particles, while the contaminated water driven from the filter-washing unit is mixed with organic flocculant to be introduced from a pipe injector. The supernatant water is then re-circulated.

The water-treatment is simplified and processing cost is reduced by this method. 10.4.79 as 043832. (5pp168)

**TOXO ★ D15 87523 C/49 ★ J5 5137-086**  
Drinking water stored in metal or plastic containers - contg. addn. of vitamin C and vitamin E to improve storability and flavour

TOYO SEIKAN KAISHA 12.04.79-JA-044546  
E13 (25.10.80) C02f-01/68

Vitamin C ( $\leq 0.05$ wt.%, pref. 0.03-0.01wt.%), and vitamin E (0.01-0.001wt.%) are added to the drinking water, stored in sealed metal or plastics container to prevent deterioration during prolonged storage in a warm place.

The method improves the taste and flavour of water, in

contrast with conventional drink water changes its colour, taste and odour in long time preservation in metal or plastics containers.

Typically various quantities of vitamin C alone, vitamin E alone, both vitamin C and vitamin E, and, control of both vitamin C and vitamin E were stored in same containers having same type drinking water in comparative tests. The sealed containers were stored for one month at  $37^\circ C$ . Best results were obt'd. with 0.03wt.% vitamin C and 0.005wt.% vitamin E. 12.4.79 as 044546. (2pp168)

**HODO ★ D15 87524 C/49 ★ J5 5137-087**  
Decomposition of cyano-metal complex salts in water - by treatment with sodium hypochlorite at pH 8-12 to effect oxidative decomposition

HODOGAYA CHEM IND KK 14.04.79-JA-044890  
E12 M13 (25.10.80) C02f-01/76

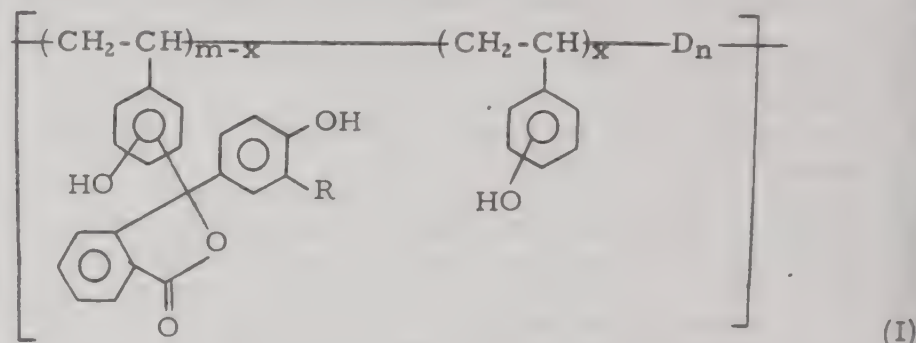
Aq. soln. contg. cyano metal complex salt is treated with Na hypochlorite at pH 8.0-12.0 to cause oxidative decomposition of the complex. Waste water from galvanising process is easily treated without any special equipment and operation which has been required in conventional methods using ion-exchange resins, electrolysis, pptg. heavy metal ions, absorption by active carbon, calcinative burning and decompn. by hypochloric acid under emission of UV radiation.

In an example, 25% of NaClO water soln. of 10 ml. per one time is added by 5 times at 6 hrs. interval in total of 50 ml., with stirring, into  $K_4/Fe(CN)_6/$  of 0.211 g./l. of water soln. of 200 ml., and after 48 hrs., tests subjecting JIS-K-0102, 29-1-2, revealed 20 p.p.m. of remaining CN. 14.4.79 as 044890. (2pp168)

**MAZN ★ D15 87529 C/49 ★ J5 5137-100**  
Hydroxystyrene polymer contg. lactone gp. - useful for sepg. ions heavy metals etc. and for treating juice, milk, amino acid waste water etc.

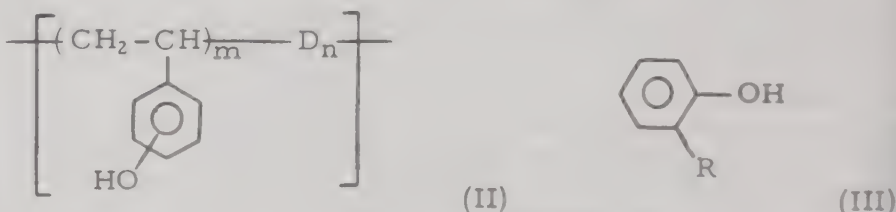
MARUZEN OIL KK 14.04.79-JA-045590  
A13 J01 (A91) (25.10.80) C08f-08 C08f-212/14

Hydroxystyrene polymer contg. lactone gp., having repeat units of formula (I) is claimed.



R is H or alkyl; D is comonomer; m is a positive integer and x and n are 0 or positive integers ( $m > x$ ). Pref. is 0; D is styrene or acrylonitrile.

Prodn. of hydroxystyrene polymer having the recurrent units (I) comprises reacting hydroxystyrene polymer having recurrent units of formula (II) with phthalic anhydride and phenols of formula (III) in the presence of acid catalyst, (pref. protonic acid or Lewis acid).



(I) is useful for sepg. and condensing various ions or heavy metals and treating juice, milk, amino acid or various waste water. 14.4.79 as 045590. (8pp78)

**TEIJ D15 54662 X/29 = J8 0043-3**  
Selective permeable membranes for reverse osmosis - prepd. fr. benzimidazole polymer contg. acyl hydrazide gp or oxadiazole gp

TEIJIN KK 08.05.73-JA-050243  
A88 J01 (A26) (06.11.80) \*J50001-080 + B01d-13

A linear polymer (A-B) (A = (I), Y = CONHNHCO, (II), X



<15C trivalent aromatic gp. R = <15C aryl, B is a bi-valent organic gp. with ave. no. of C atoms <50) contg. membrane-forming N-aryl subst. benzimidazole gp. and acyl hydrazide gp. and/or 1, 3, 4-oxadiazole gp. and having a soly. of > 7 wt % at 25° in more than one solvent select-ed from N-methyl-2-pyrrolidinone, N, N-dimethylacetamide, hexamethylphosphoramide, and methyl sulphoxide contg. 0-5 wt % LiCl, is used for making a selective perm-eable membrane from the organic solvent. The membrane is esp. useful for reverse osmosis.

8.5.73 as 050243, B01d-13/00 (6.11.80) TEIJIN KK (10pp) (J50001080)

**SUMO D15 87395 X/47 = J8 0043-362**  
Block copolymer films for sepn. use, e.g. desalination - obtd. from copolymers of dihydric phenols, glycols and aromatic dicarboxylic acid derivs.

SUMITOMO CHEMICAL KK 22.11.73-JA-131990  
A88 J01 (A23) (06.11.80) \*J50080-978 + B01d-13

Films are prep. from copolymers of dihydric phenols, glycols having mol.wt.200-600, and aromatic dicarboxylic acid derivs.

In an example, a film was prep. from 2, 2-bis(4-hydroxyphenyl)propane-isophthalic acid, chloride-polyethylene glycol-terephthalic acid chloride block copolymer and used to separate Na chloride, from water. 22.11.73 as 131990, B01d-13/00 (6.11.80) SUMITOMO CHEM. KK (5pp) (J50080978)

**SUMO D15 34779 Y/20 = J8 0043-363**  
Semi-permeable membranes of acrylonitrile polymer - with thin skin deposited from plasma of an organic cpd.

SUMITOMO CHEMICAL KK 30.10.75-JA-131253  
A88 J01 (A14 A35 D13) (06.11.80) \*DT2649-543 B01d-13

The parent patent described the prepn. of semi-permeable membranes by treatment of porous components of a polymer contg. ≥ 40 mol % acrylonitrile units with a plasma.

In this addn. the plasma consists of a gaseous organic cpd.opt.contg. an inert gas. Treatment is at room temp. in a vacuum of 0.01-10 torr. The organic cpd. is an unsatd. monomer, or a satd.monomer contg. a heteroatom.

Used in desalination of sea water, treatment of effluents and concn. of fruit juices. Also used for sepn. of non-aq. fluids.

Prods. are superior to cellulose acetate membranes esp. in resistance to hydrolysis and bacterial attack. They can be used over the range pH 1-12 and at ≤ 80°C, and for sepn. of organic cpds. e.g. phenols, alcohols, carboxylic acids, amines, dimethyl formamide, dioxane, etc. which are difficult to separate with cellulose acetate membranes. Sepg. efficiency is 75-95%. 30.10.75 as 131253, B01d-13/00 (6.11.80) SUMITOMO CHEMICAL KK (6pp) (J52054688)

**SUMO ★ D15 87562 C/49 ★ J8 0043-370**  
Treatment of water contg. organic waste - with addn. of acidic colloid of melamine formaldehyde polycondensate opt. contg. urea, stirring, and adding polyacrylamide coagulant

SUMITOMO CHEMICAL KK 23.07.73-JA-083439  
A97 (A21) (06.11.80) B01d-21/\* C02f-01/56 C02f-11/14

Method comprises adding acidic colloid of melamine-formaldehyde or melamine-urea-formaldehyde polycondensate to sludge, stirring the mixt. and adding nonionic or weakly anionic polyacrylamide coagulant to the mixt. The treatment converts solids in the sludge into readily filterable floc. 23.7.73 as 083439 B01d-21/01, C02f-1/56, 11/14 (6.11.80) SUMITOMO CHEM. KK.(3pp83) (J50040488)

**FMCC D15 04746 U/04 = J8 0043-371**  
Sewage treatment - for removal of grit and heavy particles prior to digestion

FMC CORP 08.04.71-US-132435  
(06.11.80) \*US3710-941 B01d-21/02

Sewage is fed with uniform distribution along a first side wall of a treatment tank. Air is introduced into the liq. adjacent the first side wall, and above an accumulation zone

for solids, in an amt. of induce liq. contg. light org. matter and light particles of grit of S.G greater than the org. matter of flow upwardly initially and then toward the opposite side wall. The flow is interrupted by a baffle and directed toward the tank floor, the sewage flowing beneath the baffle and up between the baffle and opposite side wall for removal by flow over a weir. A screw conveyor may remove the solids from the accumulation zone. 18.1.72 as 007207 (clg.8.4.71-US-132435) B01d-21/02 (6.11.80) FMC CORP. (5pp) (J47036055)

**RASA ★ D15 87563 C/49 ★ J8 0043-372**  
Appts. for treating waste water from stone crushing plant - comprises container with electromagnetic precipitators  
RASA KOGYO KK 30.03.73-JA-035821  
(06.11.80) B01d-21/02

Appts.comprises a box provided with electromagnetic vibrators for application of a very small-amplitude high-frequency vibration to very fine suspended solid to be pptd. in the box. 30.3.73 as 035821, B01d-21/02 (6.11.80) RASA KOGYO KK (3pp26) (J49122150)

**HARA/ ★ D15 87564 C/49 ★ J8 0043-373**  
Device for PPTN. of suspended solids in sedimentation tank - has plate mounted on top end of each inclined plate to reverse solids flow downwards

HARA M 30.09.74-JA-113116  
J01 (06.11.80) B01d-21/02

A device for precipitating suspended solids in a sedimentation water tank having inclined plates, between which a water fed into the tank flows upward, is claimed. A plate is mounted on the top end of each inclined plate to reverse the solids downward. 30.9.74 as 113116 B01d-21/02 (6.11.80) HARA M (4pp26) (J51039954)

**SPEE/ D15 88473 Y/50 = J8 0043-376**  
Dissolving gas in liquid esp. oxygenation of aq. effluent - by saturating a recirculating stream with compressed gas and then mixing with diluent stream  
SPEECE R E 01.06.76-US-691762  
J02 (06.11.80) \*DT2647-913 + B01f-01 C02f-01/74

Process for introducing a gas into liquid involves intermittently circulating the liquid round a collation vessel with injection of the gas at relatively high pressure. The liquid becomes satd. with the gas. It is then mixed with a diluting stream of the liq. as the pressure is reduced.

This diluent stream has a relatively low concn. of the compressible fluid i.e. the gas c.f. that in the satd. stream. The diluent is introduced as the satd. liquid leaves the collection vessel. It is only introduced when the pressure in the vessel falls below a certain value.

Used esp. for oxygenation of effluent streams with compressed O<sub>2</sub> gas. System avoids frothing and effervescence. 29.9.76 as 117082 (clg. 1.6.76-US-691762) B01f-1/00, C02f-1/74 (6.11.80) SPEECE R.E (4pp1053) (J52146785)

**HAGE- D15 00311 T/01 = J8 0043-387**  
Ion exchange water treatment - with backwashing and separation of mixed bed resins

HAGER AND ELSASSER (HAG-) 16.06.70-DT-029720  
J01 (06.11.80) \*DT2029-720 + B01j-47/10 C02f-01/42

A treatment process (softening and/or desalting) for liqs. esp. water, using ion exchangers with repeated batch recycling of the ion exchange materials through a regeneration and washing vessel and back to the treatment vessel, is effected with a back-washing vessel before the regeneration and washing vessel, here the material is thoroughly backwashed during at least one cycle, cation and anion materials being sepd. These are then fed to separate regeneration and washing vessels, then returned together to the treatment vessel.

Immediately before the resin enters the treatment vessel, a water impulse is directed downwards through the vessel, in contraflow to the purified water. 16.4.71 as 24183/73, Div.ex.24444/71 (clg.16.6.70-DT-029720) B01j-47/10, C02f-1/42 (6.11.80) BAGER & ELSASSER (3pp) (J50068966)



**KANF** D15 47760 V/26 = J8 0043-396  
Methionine prodn waste water purifn - using hypochlorites opt in presence of sodium chloride  
KANEGAFUCHI CHEM KK (KANE) 13.04.72-JA-037531  
B05 E16 (06.11.80) \*J48104-350 + C02f-01/76  
Waste water from the methionine prodn. process is treated with hypochlorites opt. after adding NaCl to reduce the COD. NaCl by-prod. from the process can be used. In an example 7.5 wt pts. 12% NaClO is added to 100 wt.pts. waste water (COD 320 ppm) from the methionine prodn. process and the waste water is heated 3 hr. at 100°. The COD of the resulting water is 20 ppm. 13.4.72 as 037531 C02f-1/76 (6.11.80) KANEGAFUCHI CHEM.IND.CO. (2pp) (J48104350)

**KANK-** D15 69538 Y/39 = J8 0043-397  
Waste water filtration bed - comprising low density coarse upper layer and fine high density lower layer  
KANKYO KAGAKU CENTE 14.01.76-JA-003352  
A88 (06.11.80) \*J52097-254 + B01d-23/10 C02f-03/04  
A polluted water is purified by filtration by passing it from above through a filtration bed. The bed has intermediate unfilled aq. layer (400-700 mm thick) an upper low density (< 1) layer of filtrating material e.g. a polyolefin, a foam-ed resin, a coke a light wt. aggregate etc.  
The upper part of the intermediate layer and lower dense filtration layer are made of granular material (grain size 0.1-5 mm relative density > 1) e.g. sand, anthracite, an ore, slag, a coal and asbestos etc. opt. supplying dissolved O<sub>2</sub>. The upper filtration layer has coarser cavity structure than the lower filtration layer. The filtration bed after back-washing is reused. 14.1.76 as 003352, C02f-3/04, B01d-23/10 (6.11.80) KANKYO KAGAKU CENTE (8pp34) (J52097254)

**EBAI** D15 32945 X/18 = J8 0043-400  
Purification of waste water - which contained an ammonium salt and/or organic matter  
EBARA INFILCO KK (EBAR) 12.09.74-JA-105292  
J01 (06.11.80) \*J51032-058 + C02f-03/30

In the treatment of waste water contg. an ammonium salt and organic matter, the improvement, comprises contacting the waste water with powdered zeolite or analogous adsorber under aerophilic conditions to convert the ammonium salt into nitrous acid or a nitrate, thereafter contacting the liquor from the initial step with a carbonaceous adsorber under aerobic conditions to adsorb the organic matter and at the same time converting the nitrous acid or the nitrate into N<sub>2</sub> which is released in the air. 12.9.74 as 105292, C02f-3/30, 3/34 (6.11.80) EBARA INFILCO CO. (4pp) (J51032058)

**MITO** D15 40707 C/23 = J8 0044-284  
Fluidised incineration of sludge contg. nitrogenous component - by two-stage injection of air, without formation of nitrogen oxide(s)  
MITSUBISHI HEAVY IND KK 23.10.78-JA-130196  
+ Q73 (11.11.80) \*J55056-898 + F23c-11 F23g-05

Process comprises 2-step injection of combustion gas into bed part of the furnace. The oxygen content of the first injection is less than that needed for combustion of the sludge. The secondary combustion gas results in combustion of the sludge at the bed part.

The improvement comprises injecting the sec. air into a duct connected to outlet of the incinerating furnace to rapidly and uniformly mix with gas resulting in the combustion of the sludge in mixing chamber in the duct. The temps in the duct and the mixing chamber are maintained at 650-850°C in accordance with H<sub>2</sub> concn. of the gas to completely burn an uncombusted portion of the gas and to reduce nitrogen oxides contained in the gas with NH<sub>2</sub> contained in the uncombusted gas portion and O<sub>2</sub> contained in the sec. gas so that the uncombusted gas is completely and safely burnt while reducing nitrogen oxides. 23.10.78 as 130196 F23g-5/00, F23c-11/00 (11.11.80) MITSUBISHI HEAVY IND KK (9pp)(J55056898)

**HITG** ★ D15 87592 C/49 ★ J8 0043-801  
Multistage flash evaporator for desalination of sea-water - includes degasifier and flash evaporation chambers  
BABCOCK-HITACHI KK 18.12.71-JA-103010  
J01 (08.11.80) B01d-01/30 B01d-03/06 C02f-01/06

Appts. comprises a degasifier, into which descaled sea-water is fed and degasified by the flash vapour from a brine. The sea water is joined with the brine and evaporated in evaporation chambers. 18.12.71 as 103010, B01d-3/06 1/30, C02f-1/06, (8.11.80) BABCOCK HITACHI KK (3pp26) (J48067175)

**KENK/** D15 90541 A/50 = J8 0043-808  
Ion removal from aq. soln. - by passing it through ion exchange resin contained in electrodialysis bath which is activated to desorb the resin  
KEN K 15.04.77-JA-042708  
J01 (J03) (08.11.80) \*J53128-584 B01d-13/02

A method for continuous removal of ions from a soln. (I) of low ion-concn. comprises setting an ion-exchange resin-bed (II) in a chamber, divided by ion exchange membrane (III), in an electro-dialysis bath (IV), in which electric field is applied to (III) and (I) is passed through (II). The ion is removed effectively and inexpensively, using small-scale equipment.

The bath is divided by a cation exchange membrane and anion exchange membrane, to provide three chambers, i.e. a cathode cell contacting one side of the central chamber through a cation exchange membrane, an anode cell contacting with the other side of central chamber through an anion exchange membrane, and the central chamber, in which anion exchange resin bed is formed. When ion is accumulated in the bed, it is desorbed through (III), and adsorption and desorption of ion are continuously carried out. The desorbed ion is exhausted to the cathode cell or anode cell. 15.4.77 as 042708, B01d-13/02 (8.11.80) KEN K. (4pp) (J53128584)

**SENP- ★** D15 87595 C/49 ★ J8 0043-810  
Pressing and dewatering sludge cakes - using filter press, involves pressing sludge in compression diaphragms, feeding compressed gas into filter chambers to press dewatered cakes  
SENPOKU KANKYO SEIB 27.01.77-JA-008071  
(08.11.80) B01d-25/12

Method for pressing and dewatering sludge cakes in a filter press involves pressing the sludge in compression diaphragms, a compressed gas is then fed into filter chambers, which have filtered out raw water, to press the cakes once dewatered in the diaphragms. 27.1.77 as 008071, B01d-25/12 (8.11.80) SENPOKU KANKYO SEIBI SHISETSU KUMIAI (5pp26) (J53093476)

**MITO** D15 79892 X/43 = J8 0043-814  
Impurities removal from gas scrubbing solns contg. ammonium sulphate - using calcium hydroxide to separate soot, ash and metal cpds

MITSUBISHI HEAVY IND KK 05.11.73-JA-123366  
E03 J01 L02 (08.11.80) \*J50074-564 + B01d-53/34

During treatment of waste gas, pretreated with NH<sub>3</sub> by a wet-process desulphurisation appts. the washing liq. contg. (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> (I), soot, and other metal cpds. from the cooling tower is neutralised with alkali soln. contg. Ca(OH)<sub>2</sub> without decompsn. of (I) to flocculate the soluble metal cpds. after sepg. the floc together with soot and ashes from a I-contg. liq. the I-contg. liq. is decomposed to form NH<sub>3</sub> and gypsum by addn. of Ca(OH)<sub>2</sub> slurry.

This system removes impurities, esp. 5 cpds. from waste gas washing liqs. without discharge of waste water from the system and the prods. NH<sub>3</sub>, gypsum, and water may be recycled in this system. The gypsum produced may be used as a scale-inhibiting seed crystal in the absorption process. 5.11.73 as 123366, B01d-53/34 (8.11.80) MITSUBISHI HEAVY IND. KK (4pp) (J50074564)



**CKA- D15 59361 W/36 = J8 0043-831**  
 Waste water purifcn. by coagulative flotation - by addn. of organic  
 coagulant and inorganic hollow particles  
 EC KAGAKU KOGYO KK 04.05.73-JA-050050  
 J01 + P41 (08.11.80) \*J49135-269 + B01d-17/04 B03d-01 C02f-  
 01/24

An org.coagulant and inorg.fine hollow particles are added  
 to waste water to coagulate suspended solids in the waste  
 water and sep.by floating. In an example, 97g of a dibenzyl  
 denesorbitol system coagulant was mixed with 3g. Shirasu  
 balloon (av.particle size 100 $\mu$ ) and the resulting mixt. in  
 an amt. of 50 ppm (as the coagulant), was added to turbid  
 waste water contg. 1000 ppm oil. After agitating for 10 sec.  
 floated flocs were removed to obtain transparent water.  
 4.5.73 as 050050, C02f-1/24, B01d-17/04, D03d-1/00  
 (8.11.80) EC KAGAKU KOGYO KK (3pp) (J49135269)

**EBAI D15 54556 A/30 = J8 0043-832**  
 Activated carbon treatment of lixiviated sewage - by flocculation of  
 the sewage and treating with activated carbon under weakly acid  
 conditions

EBARA INFILCO KK 07.12.76-JA-146888  
 (08.11.80) \*J53070-546 + C02f-01/24

A wastes-lixiviated sewage treatment is claimed, in which  
 an inorganic flocculant of a metal salt and, if necessary,  
 an organic flocculant are added to sewage under slightly  
 acid condition, to cause flocculation and floatation of the  
 flock formed and then the sewage is treated with activated  
 carbon under weakly acid conditions.

Process is applied to sewage arising at reclaimed  
 grounds. Effective sludge removal and high COD removal  
 are attained.

Ferric chloride or aluminium sulphate is pref. added  
 to wastes-lixiviated sewage, to which slaked lime or caustic  
 soda, or sulphuric acid or hydrochloric acid is also add-  
 ed to produce a pH of 4 to 6. If necessary, a non-ionic,  
 high-molecular flocculant is added in an amt. of 1-4 ppm to  
 permit effective floatation of the sludge formed and flocked.  
 After sludge sepn. the remaining soln. is subject to activat-  
 ed carbon treatment under the same pH for COD removal.  
 7.12.76 as 146888, C02f-1/24, 1/28 (8.11.80) EBARA INFIL-  
 CO KK (5pp6) (J53070546)

**INOZ ★ D15 87599 C/49 ★ J8 0043-833**  
 Active sludge water treatment - using contact tank for aeration,  
 electrodes, separator tank and concentrator  
 INOUE JAPAX RES INC 08.05.74-JA-050284  
 (08.11.80) C02f-01/26 C02f-11/12

Device is for treating dirty water which contains active  
 sludge. It comprises a contact tank for aerating the water  
 between electrodes, separator tank for sepg. the water  
 into water, solvent and solid layers, and concentrator for  
 concentrating the solid layer, and dirt. 8.5.74 as 050284,  
 C02f-1/26, C02f-11/12 (8.11.80) INOUE JAPAX RES.INST.  
 (4pp26) (J50143344)

**MITO ★ D15 87600 C/49 ★ J8 0043-836**  
 Treating of pulp waste water - by coagulating lignocellulose in  
 water with magnesium hydroxide, burning sepd. floc and recycling  
 calcium oxide-based ash and magnesium salt  
 MITSUBISHI HEAVY IND KK 02.02.71-JA-003860  
 F09 (08.11.80) C02f-01/52

Method comprises (i) coagulating lignocellulose in waste  
 water with Mg(OH)<sub>2</sub>, (ii) sepg. the floc, (iii) burning the  
 floc and returning a part of the CaO-based ash to the step  
 (i) and (iv) dissolving rest of the ash in acid and returning  
 the Mg salt formed to step (i). 2.2.71 as 003860, C02f-1/52  
 (8.11.80) MITSUBISHI HEAVY IND KK (7pp83)(J47028761)

**GRAC D15 35377 U/25 = J8 0043-837**  
 Closed circuit liquid oxygenator - using air fractionation column and  
 ozone generator  
 GRACE W R CO 03.12.71-US-204503  
 (08.11.80) \*NL7216-325 + C01b-13/10 C02f-01/78

The fractionator is of the pressure oscillation type with at  
 least two parallel zeolite filled sections and separates a  
 large proportion of N<sub>2</sub> from air fed into it so that oxygen  
 enriched air is passed to the ozone generator feeding the

water/gas contact bed. Wet gases from this bed, in which  
 the ozone is reduced to bivalent oxygen (O<sub>2</sub>), are recircul-  
 ated via a vapour trap, into the fractionator together with  
 a topping up fresh air supply mixed in with them in the loop  
 High treatment capacity for water purification and relative  
 economy. 2.12.72 as 120351, (clg.3.12.71-US-204503) C02f  
 1/78, C01b-13/10 (8.11.80) GRACE & CO. W.R. (8pp)  
 (J48076780)

**EBAI D15 54566 A/30 = J8 0043-838**  
 Treating polluted water oozing from waste - using less coagulant  
 and activated charcoal and generating less sludge

EBARA INFILCO KK 07.12.76-JA-146887  
 (08.11.80) \*J53070-561 + C02f-03/12

The polluted water has 800-3000 ppm COD, 150-1500ppm  
 BOD, 100-1000 ppm suspended solids, pH 8-8.5, a dark  
 brown colour and a colour degree of 2000-8000. the pollut-  
 ed water being subjected to a purification treatment with a  
 saved amt. of a coagulant and an activated charcoal to be  
 used and a decreased amt. of a sludge to be generated by  
 the following.

The process comprises treating the water with an acti-  
 vated sludge and then with a coagulant while maintaining  
 its pH under a weakly acidic state (pH = 4-6). The coagul-  
 ant is e.g. a combination of an inorganic metal salt and a  
 nonionic organic polymer. 7.12.76 as 146887 C02f-3/12  
 (8.11.80) EBARA INFILCO KK (5pp34) (J53070561)

**RHHU D15 53904 T/34 = J8 0043-839**  
 Conditioning and de watering of effluent sludge - by mixing with  
 flocculants

RHEINSTAHL AG 28.01.71-DT-103970  
 A97 + Q73 (08.11.80) \*NL7201-090 C02f-11 F23g-05

Sludge is vaporised into small droplets, passed through a  
 hot gas atmosphere and into a bath for flocculant (e.g. syn-  
 thetic polymer) addition. Sludge droplets are acidified usin  
 calcium chloride to a pH of < 4. Dewatering is carried out  
 using a pre-cooler and a sludge reactor tower with adjust-  
 able injection nozzles. Between pre-cooler and sludge re-  
 actor is fitted a dry particle catcher for smoke gas. Alter-  
 natively a centrifuge may be used for dewatering. Complete  
 and irreversible denaturing of the protein from the slud-  
 ge may be achieved by a quick heating up process of the  
 sludge droplets to pref. 60-85°C, and a residence time in  
 the gas atmosphere (pref. contg. CO<sub>2</sub>) between 1-10 sec.  
 27.1.72 as 009535 (clg.28.1.71-DT-103970) C02f-11/00,  
 F23g-5/00 (8.11.80) RHEINSTAHL AG (8pp) (J47017268)

**ONOD D15 71269 W/43 = J8 0043-840**  
 Sludge contg mineral oil treatment - by mixing with cement (dust)  
 and solidfn for odour removal

ONODA CEMENT KK 30.05.73-JA-059741  
 L02 + P43 (08.11.80) \*J50009-243 + B09b-03 C02f-11 C04b-29

Sludge contg. odourous materials and large amts. of water  
 is mixed with cement dust and cement, and then solidified.

In an example, .1 m<sup>3</sup> clay sludge (water content 600%)  
 contg. 4% of a mineral oil was mixed with 420 kg portland  
 cement dust and 180 kg portland cement and then spread  
 on a plate to a thickness of 10 cm and hardened. The miner-  
 al oil odour disappeared after 1.5 days and the hardened  
 mass had compressive strength 25 kg/cm<sup>2</sup> after 7 days.  
 30.5.73 as 059741 C02f-11/00, B09b-3/00, C04b-29/00  
 (8.11.80) ONODA CEMENT CO.LTD. (4pp) (J50009243)

**WAFI- D15 07852 X/05 = NL-165-385**  
 Non-woven osmosis tube - has a tear-open strip for removal when  
 the internal membrane is worn out

WAFILIN BV 30.09.74-NL-012910  
 F04 J01 + Q67 (17.11.80) \*DT2529-515 B01d-13 B01d-31

A thin-walled tube formed from a fibrous fleece is ade-  
 quate to receive inside it a membrane; the assembly being  
 fitted into a support tube in a unit for filtration by rever-  
 sed osmosis.

The fibrous fleece can be torn apart by a hooked detail  
 embedded in its wall at one end, possibly between two lay-  
 ers of fleece, with a thread which is also embedded attach-  
 ed to a ring at the other end.

The difficulty of extracting the exhausted membranes



which have been expanded by the high pressure against the wall of the support tube, requiring considerable effort and down time for the filter, is thus overcome. 30.9.74 as 012910 (4pp1014)

HYDR- ★ D15 87640 C/49 ★NL 8001-712  
Membrane module for reversed osmosis - has spirally-wound flow passages and membranes without folds spaced by gauze  
HYDRANAUTICS 15.05.79-US-039209  
(18.11.80) B01d-13

Central tube having an axial passage drains off a partic. fluid component from a fluid mixt. fed to a spirally wound membrane for reversed osmosis. A flow guide forms a channel which leads the partic. fluid component towards the central tube, and is wound spirally around the tube to the axial drain of which it is connected. A number of rectangular membrane envelopes are formed from an elongated permeate collecting film. Each of these forms a flow path for the fluid component to the flow guide from the outer circumference of each envelope. Folded stiffening films are placed between and combined with adjacent collecting films, and each supporting film has membrane zones in which reversed osmosis of the feed takes place.

Each supporting film has a further fold in a zone where no reversed osmosis takes place, whilst there are no fold lines in the membrane zones where reversed osmosis does take place. Between each adjacent envelope a spacer is placed with each of its ends in the neighbourhood of the zone where the supporting film is folded and where no reversed osmosis takes place. The spacer for the sepg. of the envelopes forms a passage for the feed so that this can flow over the membrane zones of each envelope.

To provide a reversed osmosis unit which is capable of handling economically a large flow of say sea water to be desalinated. There are no folded edges of the membrane which weaken and cause breakdown allowing undesired constituents to pass and making it necessary quickly to replace the membrane. The membrane is easily assembled, costs are reduced and the lifetime of the modules is increased. 24.3.80 as 001712 (19pp1014)

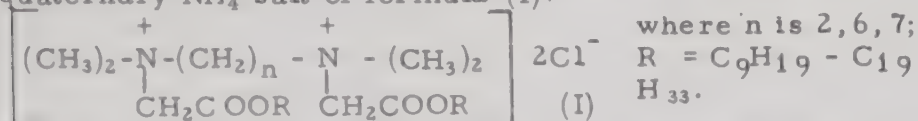
HUTT/ ★ D15 C/49 ★OE 7707-535  
Liq. aeration device  
HUTTER K 21.10.77-OE-007535  
J02 (15.11.80) B01f-05/04

KALU= ★ D15 87669 C/49 ★SU -688-442  
Removal of emulsified PVC from aq. effluent - by coagulation with bis-quaternary ammonium salt to reduce corrosion and bacterial content

KALUGA KHLORVINIL (UYCH=) 17.04.78-SU-605325  
A14 E16 (30.09.80) C02c-05/02

PVC is removed from effluent by addition of a coagulant and subsequent filtration.

The process is simplified by using as coagulant bis-quaternary  $\text{NH}_4$  salt of formula (I):



These surfactants have anti-corrosive and bacteriostatic props. The degree of PVC removal is 100%.

Lopushanskaya, A.I., Rudl, V.P., Orynyak, M.V. et al. Bul. 36/30.9.79. 17.4.78. as 605325 (3pp835)

FEPu ★ D15 87677 C/49 ★SU -712-395  
Treatment of industrial hard water for boilers etc. - using as scale inhibitors, polyethylene-amine or imine with aminoethylphosphonium gps. and seed crystals  
FERR METAL EFFL PURIF (URFO) 12.05.74-SU-021702  
A97 (30.01.80) C02b-05/06

Deposition of  $\text{CaSO}_4$  from high mineral content water during evapn. in metallurgical, chemical and power ind., is avoided by addn. of a scale inhibitor and a seed crystal

Deposition tendencies are minimised using less reagents, by using as scale inhibitor, water-soluble derivatives of polyethylenepolyamine or polyethyleneimine with aminomethylphosphonium grps, or their admixtures.

The inhibitor is added before evapn. and the seed crystal when the water is 100-130% super-satd. with  $\text{CaSO}_4$ .  
Balakin, V. M., Vainshtein, I. A., Driker, B.N. et al. Bul. 4/30.1.80. 12.5.74. as 021702 (2pp835)

SKRI/ ★ D15 87678 C/49 ★SU -712-399  
Chlorine caustic soda prodn. aq. waste purificn. - by adding excess alkali and oxalic acid for active chlorine and calcium and magnesium salts removal  
SKRIPNIK V A 16.03.77-SU-463376  
E36 J03 (30.01.80) C02c-05/02

Effluent from diaphragm  $\text{NaOH-Cl}_2$  mfg. ind. is freed from active Cl and Ca and Mg salts increasing water hardness by adding alkali, followed by oxalic acid, maintaining the pH at 9-10. Typically, 1l effluent of composition (g/l)  $\text{NaCl}$  10, free Cl 0.105,  $\text{Ca}^{2+}$  1.0,  $\text{Mg}^{2+}$  0.6, was treated with 4.5g oxalic acid and alkali to pH9. The whole was stirred for 5 mins. and allowed to settle for 10 min., after which it was filtered. The purified liquor contained, free  $\text{Cl}_2$  < 0.001 g/l. Ca + Mg 0.02 g/l. Akripnik, V.A., Gorenbein, A.E., Leontovich, E.V. et al. Bul. 4/30.1.80. 16.3.77. as 463376 (2pp835)

TATN= ★ D15 87737 C/49 ★SU -724-166  
Waste water and crude oil emulsion separator - has angled elastic plates in centre of separator casing, used in waste water purificn.  
TATNEFT PROD ASSOC 27.04.78-SU-609498  
J01 (30.03.80) B01d-17/04 C10g-33/06

The oil-in-water emulsion breaker useful in petroleum processing aq. waste purificn. comprises a horizontal casing, emulsion inlet and gas, oil and water outlet pipes, and a set of sloped partitions.

To increase performance, elastic plates are mounted level with the bottom generating line of the emulsion pipe, at 8-10° to the casing axis.

The emulsion, after fresh-water treatment, is uniformly distributed by a baffle, and then undergoes hydrodynamic turbulising on the plates, with coalescence in the intermediate emulsion layer. The water globules flow via the partitions into a discharge pocket, the gas issuing at the top and the oil at the end of the separator.

Khisamutdinov, N.I., Sablin, I.V., Ibragimov, G.Z. et al. Bul. 12/30.3.80. 27.4.78. as 609498 (2pp132)

SMIR/ ★ D15 87764 C/49 ★SU -724-451  
Removing scale from tubular heat-exchange appts. - with aq. compsn. contg. hydrochloric acid and corrosion inhibitor with addn. of kerosene as antifoaming agent  
SMIRNOVA N S 24.07.78-SU-653486  
J08 (30.03.80) C02b-05

Compsn. for removal of scale from metallic surfaces, esp. from tubular heat-exchange appts. contains (in wt. %)  $\text{HCl}$  20-25, corrosion inhibitor 0.8-1.2, kerosene 0.08-0.4 (as antifoaming agent) and water the balance is water.

In tests, foaming was reduced 2-2.8 times. Optimal results were obtained with 0.08-0.24% of kerosene.

Smirnova, N.S. and Litvin, A.P. Bul. 12/30.3.80. 24.7.78. as 653486 (2pp70)

GUDA/ ★ D15 87894 C/49 ★SU -729-128  
Removal of suspended matter in aq. effluents - using polydi-methyl-aminoethyl methacrylate as flocculant, useful in mineral phosphate fertiliser mfr.

GUDASHEVA V M 06.02.78-SU-577229  
A97 C04 (25.04.80) C02b-01/20

Suspended matter is removed from industrial aq. waste by addn. of a readily soluble flocculant, comprising polydimethylaminoethyl methacrylate (I) used at a conc. of 10 mg/l.

Typically, effluent from superphosphate mfr. contg. 300-10000 mg/l. suspended matter, is piped to settlers and a 0.1% soln. of (I) is fed into give a conc. of 10 mg/l. At deposition rate 5.8 m/hr., flocculant (I) lowers the amount of deposit from 30-28 mg/l; the period of polyacrylamide soln. (120-160 min) is reduced to 1-3 min. when (I) is used. The stirring rate is also reduced from



300 to 30 rev/min.

Gudasheva, V.M., Arkhipova, L.N., Zezin, A.B. et al.  
Bul. 15/25.4.80. 6.2.78. as 577229 (2pp835)

**RATR ★ D15 87895 C/49 ★SU-729-129**  
Bacterial decontamination of potable water - using calcium hypochlorite and filtration through defined cell size membrane  
RAILWAY TRANSPORT INST 11.10.78-SU-674013  
(25.04.80) C02b-03/02

Potable water is decontaminated by contact with active chlorine generating agent, e.g. Ca hypochlorite.

Decantation time is curtailed by using 50 mg. active Cl<sub>2</sub>/l and then passing the water through a cellular membrane of cell size 1x1-40x40 μm.

Typically, 1% Ca hypochlorite soln. is fed into piped water contg. 10<sup>9</sup> anthracid cells (strain 96) to give 50 mg. active Cl<sub>2</sub>/l. The doped water passes through a membrane of cell size 16x16 μm. and then into a reservoir at 1.5 m/sec. After 2 hrs. residence in the reservoir, anthracid spores were not detected in the water, a 2.5 fold improvement.

Babenkov, E.D., Limonova, T.P., Kozlovskaya, L.A. et al. Bul. 15/25.4.80. 11.10.78. as 674013 (2pp835)

**KLPO= ★ D15 87896 C/49 ★SU-729-130**  
Livestock discharge from farms processing - using ground shale cinder as disinfecting and flocculating agent, useful in acid soil neutralisation and fertilisation

KALIN POLY 10.03.78-SU-598227  
(25.04.80) C02b-03/06 C02c-05/02

Shale cinder is proposed as a disinfecting agent for livestock discharge in farms. The quantity proposed ~ 30 g/l. liquid. The fine cinder particles induce floc formation in the effluent due to the presence of Fe and Al silicate coagulants in the former. Chemical oxygen demand in the effluent falls by 28%, it becomes clarified and its high alkalinity (pH 12) due to Ca(OH)<sub>2</sub>, induces bacterial lysis.

Osipov, G.P. Bul. 15/25.4.80. 10.3.78. as 598227 (2pp)

**BORI/ ★ D15 87899 C/49 ★SU-729-133**  
High resistivity deionised water purificn. appts. - using finish purifier with thermostatically controlled receptacle contg. semiconductor single crystal tablets with amorphised vee-grooves  
BORISOV O M 13.02.78-SU-581027

L03 T06 X25 (25.04.80) C02c-01/40 G05d-27

Known appts. for deep purification of deionised water used in prodn. of various semiconductor devices contains filters, an organic matter adsorption unit and a purifier based on anionite and cationite resins. To improve removal of ionic impurities, an additional purifier is introduced using a thermostatically controlled receptacle with semiconductor single-crystal tablets with V-shaped grooves. Efficiency is proportional to the amorphised surface area.

Borisov, O.M., Feingenson, A.L., Lysenko, E.F. Bul. 15/25.4.80. 13.2.78. as 581027 (2pp840)

**REEN= ★ D15 87900 C/49 ★SU-729-134**  
Biological aq. effluent purificn. - includes pretreatment of suspended biological material in electric field, followed by flocculation and dewatering by centrifugation

LENGD ENG CONS INST (VODO=) 23.10.78-SU-675629

X25 P41 (25.04.80) B01d-21/\* B03c-05 B04b-05/10 C02c-03

Suspension from city aq. effluent biological purificn. plants after addn. of flocculant dewatered by centrifugal sepn.

The quantity of flocculant required is minimised by pretreating the biological suspension before flocculation and centrifugation in an electric field at 20-30 V/cm. for 7 min. This gives deposit with 41% ash content, and 9.6% humidity.

Medvedev, G.P., Smirnov, O.V., Avetisyan, P.K. et al. Bul. 15/25.4.80. 23.10.78. as 675629 (2pp835)

**BUDN/ ★ D15 87901 C/49 ★SU-729-135**  
Clarification of barytes enrichment plant aq. effluent - using longitudinal variable strength electric field and synthetic flocculant  
BUDNIKOV A P 16.02.78-SU-581124  
A97 J01 M25 (X25) (25.04.80) C02c-05

Effluent from barytes concentrate enrichment plants is clarified by adding a synthetic flocculant under the action of an external force field.

The coagulation rate is accelerated and discharge of improved clarity is secured, using a longitudinal variable strength electric field.

The barytes concentrate contains a wide assortment of metals, silica 3% and carbon 0.54%; its particle size lies chiefly in the region 0.02-0.005 mm. The effluent is mixed with polyacrylamide in a flow chamber fitted with lateral grid electrodes. The induced field is activated at 50 V/cm., 50 Hg. impulse on-off time ratio 0.5. Since the removal of effluent solids is improved 2-fold, the plant could be operated at 60% greater efficiency.

Budnikov, A.P., Zelenkov, V.E., Kul'sartov, V.K. et al. Bul. 15/25.4.80. 16.2.78. as 581124 (2pp835)

**BAKS/ ★ D15 87902 C/49 ★SU-729-136**  
Plant for oil removal from waste water - has inverted closed pipe and distribution pipework for recirculating water

BAKSHT S P 21.06.78-SU-629610

J01 P41 (25.04.80) B03d-01/14 C02c-05

Flotation treatment plant for removal of oil and oil prods. from waste water is made more effective in operation by avoiding entrainment of floated particles by descending cleaned water and providing means for removal of emulsified particles. Foam is cleared off from the surface of the tank, together with the particles adhering to the bubbles, leaving the surface clear for collection of the sinking emulsified particles which are brought back up to the surface by the rising recirculation flow of cleaned water. Without this clearing of the foam, collection of the emulsified particles is difficult as they adhere poorly to bubbles. Inverted closed pipes have been immersed in the water, one for source of cleaned water for recirculating and the other for tap-off of finished cleaned water from the plant.

Baksht, S.P., Saakyan, G.M. Bul. 15/25.4.80. 21.6.78. as 629610 (3pp1465)

**DAIR= ★ D15 87903 C/49 ★SU-729-137**  
Purification of milk processing aq. effluent - includes filtration through powdered brick and cellulosic fibre board to remove fats and proteins

DAIRY IND RES INST (TAPO=) 02.06.76-SU-367960 -  
(D13) (25.04.80) C02c-05/02

Dairy industry effluent is freed from fats by passage through powdered brick. Effluent which is somewhat contaminated with other milk components is highly purified by further passage through cellulosic fibre board at a pressure of 1.4-8.0 ats.

Typically, secondary condensate from milk evaporators contg. 1 ml. milk/l is passed through a press filled with 2mm. powdered brick, particle size 0.05mm., followed by cellulose board, at 1.4 ats. operating pressure. The residual milk content fell to 0.01 ml/l. At 8 ats. operating pressure, this fig. fell to zero.

Lisenkova, L.L., Siirde, E.K., Loozits, Kh.A. et al. Bul. 15/25.4.80. 2.6.76. as 367960 (2pp835)

**KOVE/ ★ D15 87904 C/49 ★SU-729-138**  
Processing spent iron sulphate contg. pickle liquor - by adding lime, oxidn. with air in presence of silica gel, and treating ppte. with acid to improve iron removal

KOVEL M S 12.12.77-SU-552364

M12 (25.04.80) C02c-05/02

Spent pickle liquor contg. Fe and H<sub>2</sub>SO<sub>4</sub> is neutralised with lime, ferrous Fe is oxidised with air to the deposit is sepd. and dissolved in acid. Better oxidn. of ferrous Fe is secured for the total recovery of Fe, by oxidising in presence of silica gel at pH 11.0-12.5 and at 25-45°C. Kovel, M.S., Kisil, Yu.K., Tkachev, K.V. Bul. 15/25.4.80. 12.12.77. as 552364 (2pp835)



**MOGI= ★ D15 87905 C/49 ★SU-729-139**  
Removal of organic cpds. from di:methyl terephthalate prodn. effluent - includes neutralisation and extrn. with methyl benzoate at elevated temp.

MOGIL KHIMVOLOKNO 22.02.78-SU-582906

A41 E14 (25.04.80) B01d-11/04 C02c-05/02

Organic bodies are removed from dimethylterephthalate production effluent by neutralisation and extraction. The degree of removal is improved by extrn. with methyl benzoate at 60-80°C.

Zaloga, M.I., Anoprienko, V.I., Balkov, B.G. Bul. 15/25.4.80. 22.2.78. as 582906 (2pp835)

**COAL= ★ D15 87906 C/49 ★SU-729-140**  
Coal enrichment aq. effluent - clarified by addn. of coarse ground coal clinker

COAL RES INST 04.05.78-SU-611362

J01 (25.04.80) C02c-05/02

Effluent from coal concentration plants is clarified by adding a coarse grained clarifier and settling. The clarification rate is accelerated by using coal clinker as clarifier, particle size  $>65\mu\text{m}$ .

Typically, 400 ml. effluent contg. 20g/l. suspended solids from a coal concn. plant is mixed with 8g coarse coal clinker. After 3 mins. the clarified layer height is 13 cm; the deposition rate is 4.33 cm/min. When  $<63\mu\text{m}$  coal is used as clarifier, the deposition rate is only 0.17/min.

Danchina, A.A., Smagulova, S.A., Ovchinnikova, N.M. et al. Bul. 15/25.4.80. 4.5.78. as 611362 (2pp835)

**POPO/ ★ D15 87907 C/49 ★SU-729-141**  
Removal of zinc from viscose aq. effluent - using milk of lime and water purification slime to by-pass neutralisation stage

POPOV V V 17.10.78-SU-675821

A11 E32 (25.04.80) C02c-05/02

Zn is removed from viscose aq. effluent by treating the latter with milk of lime until alkaline, neutralisation with  $\text{H}_2\text{SO}_4$  and filtration.

The process is accelerated by avoiding the neutralisation requirement as follows: the effluent is treated with 48-480 mg/l (on dry wt.) of plant water pretreatment slime, then made alkaline to pH 7.5-8.4 and filtered.

Popov, V.V., Zeltser, A.A., Matuskov, Yu.E. et al. Bul. 15/25.4.80. 17.10.78. as 675821 (2pp835)

**YURE/ ★ D15 87908 C/49 ★SU-729-142**  
Waste water treatment plant - using biological purifcn. aerating effluent in filtration grid

YUREV B T 03.10.78-SU-668837

(25.04.80) C02c-05/10

The biological water purification plant, claimed in Patent 529128, has its area reduced without loss of efficiency by aerating the effluent in the filtration grid at an air feed 2-50  $\text{m}^3/\text{m}^3$ .

Typically, in the overall 324  $\text{m}^2$  area is installed a single aerator, air feed 42  $\text{m}^3/\text{hr}$ . power 2.2 kw. Clarified water is conveyed to the filtration grid to a depth of 0.3m. and the aerator is cut in. After priming to 1m. effluent feed is superimposed on the sludge. Further water is passed in when the level falls to 0.3m. The procedure permits a year round rise in loading rate of 600  $\text{m}^3/\text{hect. per 24 hrs.}$  which is twice the present winter rate.

Yurev, B.T. Bul. 15/25.4.80. 3.10.78. as 668837 Add to 529128 (2pp835)

**LENI ★ D15 87909 C/49 ★SU-729-143**  
Vitamin-protein microbiological prodn. aq. effluent - purified using two-stage settling with intermediate electric field treatment to remove organic suspended material

LENINGRAD LENSOVET TECH 11.08.77-SU-521287

X25 (D16) (25.04.80) C02c-05/12

Aq. effluent purifcn. from protein-vitamin concentrate microbiological prodn. using hydrocarbon source, is based upon settling procedures and removal of organic deposits.

Improved purifcn. is secured as follows: after settling,

the water is subjected to treatment in a uniform electrical field at 1-30 V/cm. After this treatment it is again allowed to settle, so that proteins are removed prior to biological purifcn.

Volkova, A.N., Ivanova, L.V., Smirnov, O.V. et al. Bul. 15/25.4.80. 11.8.77. as 521287 (2pp835)

**COIL/ ★ D15 88202 C/49 ★US 4234-419**  
Removing inorganic salts from water - by passing through regeneratable anion and cation exchange resin beds

COILLET D W 09.10.79-US-082725

(18.11.80) C02f-01/42

Inorganic salts (I) are removed from an unpotable feed  $\text{H}_2\text{O}$  stream as follows: (a) the  $\text{H}_2\text{O}$  is passed sequentially through 2 ion exchange beds (one in anionic, one in cationic form) to remove most of the anions and cations present; (b) periodically, step (a) is discontd., and the anion exchange bed is regenerated by passage of an aq.  $\text{Na}^+$ -contg. stream; (c) similarly, while step (a) is discontd., the cation exchange bed is regenerated by passage of an aq.  $\text{Cl}^-$ -contg. stream; (d) the spent anion and cation exchange regenerant streams are mixed with an acid (II) in the presence of excess soluble  $\text{Ca}^{2+}$  to ppt. a Ca salt (one or more of sulphate, phosphate, silicates or fluoride); (e) the prod. stream (d) is sepd. into the ppt. and a soluble regenerant stream; (f) stream (e) is mixed with a base (III) in the presence of excess  $\text{CO}_3^{2-}$  to ppt. one or more of Ca, Mg,  $\text{Fe}^{2+}$  or  $\text{Mn}^{2+}$  as an insol. hydroxide or carbonate; (g) the prod. stream from (f) is sepd. into a soluble NaCl stream and a ppt.; and (h) the soluble stream in turn is sepd. into a more concd. NaCl stream (which is electrolysed to afford aq. NaOH and aq. HCl), and a less concd. NaCl stream which is recovered as the purified prod. stream together with the filtrate from (a).

Process gives a very high yield of potable  $\text{H}_2\text{O}$  from unpotable waters (geothermal brines, field drainage, and urban waste  $\text{H}_2\text{O}$ , etc.), while reducing the liq. waste  $\text{H}_2\text{O}$  stream to a min. In addn., commercial by-prods. such as NaOH and HCl are produced. 9.1.79 as 082725 (11pp478)

**DOVE/ ★ D15 88204 C/49 ★US 4234-421**  
Clarification of spent drilling mud - by treating with aluminium sulphate and polyacrylamide

DOVER V L 05.03.79-US-017558

(18.11.80) C02f-01/56

Seprn. of spent drilling mud (contg. lignosulphonate or alkaline-soluble lignite) into good-quality water and high-density solids is carried out by (a) adding a flocculant comprising 24-49 pts.wt.  $\text{Al}_2(\text{SO}_4)_3$  and 1 pt.wt. of an acrylamide homopolymer contg. 130-300 amide gps. per COOH or carboxylate salt gp. and having a molecular wt. of 10,000-5,000,000; (b) aerating the mixt.; and (c) sepg. water from flocculated solids.

Combinations of  $\text{Al}_2(\text{SO}_4)_3$  and polyacrylamide are more effective than either component alone in flocculating solids and cleaning the water. The water is suitable for irrigation or re-use in drilling, and the land contg. the solids (e.g. in a treating pit) can be immediately restored to its original use. 5.3.79 as 017558 (7pp367)

**WACK D15 84527 B/47 =US 4234-422**  
Mercury and its cpds. removal from waste industrial water - by adding reducing agent, settling, and filtration, esp. when treating water leaving chlorine mfg. plant

WACKER CHEMIE GMBH 02.05.78-DT-819153

E32 J03 (18.11.80) \*EP--5-262 C02f-01/70

Hg or Hg cpds. are removed from aq. solns. esp. industrial waste liquors by redn. and filtration. After redn. the liquors are cleared by letting Hg and dirt particles flow into a settling basin. The supernatant aq. soln. of the settling basin is subjected to single depth filtration through a deep filter contg. sand pref. quartz or Zr of grain size 0.02-2 mm.

Hg is returned to the settling basin by reverse rinsing of the filter and deposited in the basin for final removal. Hg residues remaining in the single and final filtrate is  $< 0.05 \text{ mg/litre of liquor}$ . 30.4.79 as 034314 (3pp937)



**USAT ★ D15 88205 C/49 ★ US 4234-423**  
 Wet air oxidn. system for waste waters - for reducing the chemical oxygen demand of water from coal gasification plant scrubbers  
 US DEPT OF ENERGY 30.03.79-US-025639  
 (18.11.80) C02f-01/74 C02f-11/08

Wet air oxidn. system consists of (a) a reactor; (b) 2 conduits, one for passing compressed air to the reactor, and another for pumping in waste H<sub>2</sub>O contg. organic matter; (c) a sepn. zone to separate the gaseous and liq. prods. of the wet combustion from the reactor; (d) a 1st heat exchanger in the reactor to heat air to the required reaction temp. before it is compressed and passed to the reactor; (e) a 2nd heat exchanger coupled to the air conduit downstream of the compressor; (f) a conduit coupled to the 2nd heat exchanger and to the sepn. zone to pass the gaseous stream from the sepn. zone through the 2nd heat exchanger to extract heat from the compressed air; and (g) a turbine downstream of, and coupled to, the 2nd heat exchanger which is driven by the heated gaseous stream (from step (f)).

Using a heat exchanger to heat air to the reaction temp. before it is compressed allows the extra heat generated during compression to be used to superheat the gaseous prods. of the oxidn. system so that these do not condense in the turbine. 30.3.79 as 025639 (6pp478).

**PIEP/ D15 10442 B/06 #US 4234-424**  
 Treating used emulsion and industrial effluent - by filtration on moving belt in transportable equipment  
 PIEPHOR F (PIEP-) 25.05.77-GB-022083 (28.08.77-US-827250)  
 (18.11.80) \*GB1540-172 B01d-33/32

Sludge is sepd. from liq. in a container and discharged under gravity to an elongate spreading trough and then onto a part only of a napper filter strip moving below the trough on a continuously moving conveyor with a foraminous belt drained over rollers.

Liq. draining through the strip is received in a filtrate container after passing through both runs of the belt, and the strip with dried sludge is discharged from the end of the belt upper run. The mixt.pref. undergoes preliminary settling in the container. The method is applicable, e.g. to oily industrial effluent. 25.8.78 as 936706 (9pp1358)

**LEOJ/ ★ D15 88206 C/49 ★ US 4234-425**  
 Water fluoridation system with venturi - in main water supply with circulation of part of flow through fluoride salt  
 LEOJN 23.04.79-US-032396  
 (18.11.80) B01j-08/04

A fluoridation system includes a venturi inserted in a water line. A passage withdraws water from the line in the vicinity of the venturi. The withdrawn water is passed through a water softener, a flow control and a tank housing water-soluble fluoride salt. The water with dissolved fluoride is returned to the water line at the venturi via a passage which is perpendicular to the throughbore of the venturi. There is a transparent region in the fluoride tank for inspection of the contents.

The system can be used for the fluoridation of a metropolitan water supply or on a much smaller scale for individual homes. The appts. does not inject conc. fluoride into the water supply. It also requires no power source. 23.4.79 as 032396 (4pp295)

**ASAHI D15 67300 X/36 = US 4234-431**  
 Hollow synthetic fibres - as membrane filters for eg reverse osmosis, by wet spinning polymers using core forming soluble salts  
 ASAHI KASEI KOGYO 15.02.75-JA-018426  
 A88 F01 J01 (18.11.80) \*DT2606-244 B01d-13/04 B01d-31

Hollow fibre membrane filler of cellulose acetate is composed of a 3 dimensional net like wall structure of fine filtering passages of 0.1-1  $\mu$ . The cylindrical wall structure has a pore rate of  $\geq 55\%$  with active points with the min. passable particle size randomly distributed through-

out the structure.

The fibres are prepd. by dissolving in a solvent 10-35 wt. % polymer acid adding 40-150% wt. core forming substance pref. CaCl<sub>2</sub>, 2H<sub>2</sub>O based on wt. of polymer. 25-100 % wt. of a second solvent, pref. cyclohexanol based on wt. of first solvent, is added to the soln. which is thoroughly mixed to give a spinning liquor. The spinning liquor is discharged through a ring orifice concurrently with water or an aq. soln. of second solvent and coagulation controlling solvent to drop through an enclosing cylinder into a coagulating bath. The polymer is fed to a further bath where an extracting liq. dissolves the fibre core. 7.9.77 as 831198 (+11.2.76-US-657346) (19pp937)

**SARS D15 77583 B/43 = US 4234-528**  
 Asymmetric cellulose hydrate ultrafiltration membranes - with improved flow rate, protein retention and drying properties  
 SARTORIUS GMBH 13.04.78-DT-816085  
 A88 E36 J01 (A11) (18.11.80) \*DT2816-085 B01d-13 B01d-31 +B29d-27/04

Assymmetrical dry ultrafiltration membrane based on cellulose hydrate contains an addn. comprising hydrophobic synthetic silicic acid (I). Pref. (I) is pyrogenic or pptd and dried. (I) is pref. added as 2-50 (partic. 30-35) wt. % on total solids.

Membrane can be dried without destructive shrinkage. Saponification is effected without redn. in flow-through or sepn. performance. 10.4.79 as 028804 (5pp936)

**ANIS D15 18181 Y/11 = US 4234-652**  
 Occlusion of substance into microfibrinous structures - by admixture of adsorption; for use in controlled liberation of occluded material  
 ANIC SPA 13.08.76-IT-026263 (12.09.75-IT-027206)  
 A97 B07 C03 (D16 D22) (18.11.80) \*BE-846-089 D04h-01/04

A microfibre of irregular cross-section, length 1-10 mm and average dia.  $\sim 1.0 \mu$ , consists of a synthetic fibre forming, thermoplastic polymer selected from low density polyethylene, copolymers of ethylene and vinyl acetate and acrylic acid, high density polyethylene, relevant ethylene copolymers, polypropylene, PVAc, PVA, polystyrene, polyamide, PET, cellulose acetate and PVC, and, incorporated by adsorption, a material selected from medicaments, antiseptics, pesticides, microorganisms, preservatives and sequestering agents.

The fibres can be made into tabloids and sheets. The active agents are released over a period of time. 6.4.79 as 027868 (+10.9.76-US-722137) (6pp982)

**ERAP D15 66337 B/37 = US 4234-69**  
 Addition polymer with lateral beta-hydroxy poly:sulphonium gps. prepd. by reacting epoxy gp. contg. polymer with mercaptan and converting to poly:sulphonium  
 ELF AQUITAINE PROD 08.03.78-FR-006723  
 A28 C03 F06 +P34 (A87 A91) (18.11.80) \*BE-874-671 C08 08/34

Prodn. of a polymer, with lateral branches terminated by sulphonium gps., and an OH gp. in the  $\beta$  positions on the trunk, w.r.t. the sulphonium gps., comprises reacting a polymer contg. epoxy gps. with a thiol in the presence of a base as an oxirane bridge opening catalyst to convert the epoxy gps. to sulphide gps. Residual epoxy gps. are removed by reaction with a strong acid, and then the polymer is reacted with an alkyl halide or ester in a non-acidic medium to convert the sulphide gps. to sulphonium gps.

The prods. are obtd. in good yield, and have a HLB satisfactory for use as ion-exchange resins, flocculants, paper reinforcing agents etc. 7.3.79 as 018170 (6pp965)



## D16: FERMENTATION INDUSTRY

**LOMS ★ D16 86397 C/49 ★ BE -884-456**  
Immuno-therapeutic E. coli lysates - for treating urinary and digestive tract infections

LAB OM SA 26.07.79-CH-006924

B04 (17.11.80) A61k C12n

Compsn. for treating urinary and digestive tract infections contains as active component a bacterial lysate from > 1 of the following strains of E. Coli: NCTC-8603, 8621, 8622, 8623, 9026, 9111, 9119, 9707, 9708, I-081, I-082, I-083, I-084, I-085, I-086.

Compsns. are pref. given orally as tablets capsules or granules contg. freeze-dried lysate, as a potable liq. by parenteral injection or as suppositories. 24. 7. 80 as 884456 (7pp288)

**BRAS- ★ D16 86402 C/49 ★ BE -884-466**  
Suction recycling from and injecting washing soln. to closed vessel - via single pipe fitted with non-return suction valve and coaxial spray head

BRASSERIES KRONENBO 26.07.79-FR-019905

Q39 (17.11.80) B67c C12c

A single, two-way flow pipe passes through the wall of the vessel. The outer end of the pipe is equipped with valves so that outflow can be diverted via a processing, e. g. cooling, circuit and returned to the vessel. Alternatively, the pipe can be isolated from the processing circuit and supplied with washing soln. under pressure.

The inner end of the pipe is equipped with a non-return suction valve and a coaxial spray head to deliver washing soln. the non-return valve is pref. annular and located vertically above the spray head which is at the bottom of a vertical axis assembly.

Used for sucking process liq. out of a closed vessel for recycling etc. as well as spraying in washing soln. partic. applicable to brewery fermenting vessels from which liq. is drawn off at the top cooled and returned at the base. Single two-way pipe and end fitting replaces separate suction and washing circuit pipes and spray balls etc. External pipework correspondingly simplified and reduced. 25. 7. 80 as 884466 (15pp448)

**WEBE- ★ D16 86406 C/49 ★ BE -884-486**  
Recovering energy produced by bacterial decomposition in rubbish dump - at a rate controlled by regulating moisture and heat input-output

WEBER W ING GMBH 26.07.79-DT-930418

(17.11.80) C12p C12q

Anaerobic fermentation is ensured by fitting an air-tight cover over the rubbish. Combustible gas, partic. methane is drawn off and used for heating etc.

The rubbish dump is now used as a controllable source of power by arranging to regulate the heat input or output of and the water supply to the dump. Pref. a heat exchanger primary circuit is buried in the dump and communicates with a secondary circuit which can extract heat from and inject heat into the dump.

Infiltrated water drained from the dump is pref. recycled to maintain the moisture content of the dump. This recycled water can be cooled to extract heat from the dump.

The material in the dump can be inoculated with agents to retard or accelerate bacterial activity as required.

Deriving energy from a rubbish dump containing rotting organic waste. 25. 7. 80 as 884486 (10pp448)

**BARR/ ★ D16 C/49 ★ BR 8005-592**  
Industrial processing of residues from ethanol prodn. by fermentation

BARRETO R C R 03.09.80-BR-005592

(18.11.80) C12f-03

**KOCK/ ★ D16 C/49 ★ CS 7701-112**  
Alpha-Amylase prodn.

KOCKOVA-KRATOCHVILO 21.02.77-CS-001112

(29.08.80) C12n-09/26

**AUGU/ ★ D16 C/49 ★ CS 7702-869**  
Alpha-Amylase enzyme prodn.  
AUGUSTIN J 03.05.77-CS-002869  
(29.08.80) C12n-09/26

**KOCK/ ★ D16 C/49 ★ CS 7703-652**  
Alpha-Amylase enzyme prodn.  
KOCKOVA-KRATOCHVILO 03.06.77-CS-003652  
(29.08.80) C12n-09/26

**KOCK/ ★ D16 C/49 ★ CS 7703-653**  
Cellulose degrading enzymes prodn.  
KOCKOVA-KRATOCHVILO 03.06.77-CS-003653  
(29.08.80) C12n-09/42

**ZEME/ ★ D16 C/49 ★ CS 7704-191**  
Cellulose degrading enzymes prodn.  
ZEMEK J 24.06.77-CS-004191  
(29.08.80) C12n-09/42

**ZEME/ ★ D16 C/49 ★ CS 7704-192**  
Alpha-Amylase prodn.  
ZEMEK J 24.06.77-CS-004192  
(29.08.80) C12n-09/26

**AUGU/ ★ D16 C/49 ★ CS 7704-770**  
Alpha-Amylase enzyme prodn.  
AUGUSTIN J 19.07.77-CS-004770  
(29.08.80) C12n-09/26

**ZEME/ ★ D16 C/49 ★ CS 7704-771**  
Cellulose degrading enzymes prepn.  
ZEMEK J 19.07.77-CS-004771  
(29.08.80) C12n-09/42

**ZEME/ ★ D16 C/49 ★ CS 7804-469**  
Alpha-Amylase prepn.  
ZEMEK J 05.06.78-CS-004469  
(29.08.80) C12n-09/26

**ZEME/ ★ D16 C/49 ★ CS 7807-359**  
Alpha-Amylase enzyme prepn.  
ZEMEK J 13.11.78-CS-007359  
(29.08.80) C12n-09/26

**SUBI/ ★ D16 C/49 ★ CS 7808-905**  
Microorganisms deactivation  
SUBIK J 27.12.78-CS-008905  
(29.08.80) C12n-01/36

**LEOP/ ★ D16 C/49 ★ CS 7900-177**  
Acidic molasses soln. prepn. for citric fermentation  
LEOPOLD J 08.01.79-CS-000177  
(29.08.80) C12p-07/48

**CHUS D16 27849 T/18 #DS 2146-674**  
Enzyme-inducing factor - from enterobacteria  
CHUGAI SEIYAKU KK (CHUG) 19.09.70-JA-081821 (17.09.71-DT-146674)

B04 (27.11.80) \*DT2146-674 A61k-35/74 C07g-17 C12p-01/04  
Factor which induces enzyme activity is obtd. from culture media in which proteus mirabilis ATCC 21718, Proteus morganii ATCC 21720 or Proteus mirabilis Hauser ATCC 2172 is propagated under the usual conditions; the cells are centrifuged or filtered and suspended in water or physiological salt solution; the cells are disintegrated and the aqueous extract is separated; the solution is deproteninised with  $\text{HC1O}_4$  or  $\text{Cl}_3\text{-COOH}$  and filtered or centrifuged; the solution is treated with active charcoal at pH 3-7 and the adsorbent is removed; the charcoal is washed with a mixt. of acetone and aqueous KOH (0.2M, equal vols); the eluate is neutralised, concentrated and chromatographed on dextran gel; the fraction which induces tyrosine-transaminase activity is collected and dispersed with the usual pharmaceutical additives, diluents and carriers. 17.9.71 as 146674 (15pp047)



**CIL D16 40494 T/25 = DS 2161-164**  
Protein prodn - by fermentation of *pseudomonas methylotropa* or *rosea*, *microcylus polymorphum* or *hyphomicrobium* variable with meth

IMPERIAL CHEM INDS LTD 19.08.71-GB-038938 (09.12.70-GB-058466)

B04 C03 (D13) (27.11.80) \*BE-776-317 C12n-01

Microbiological prodn. of protein materials comprises aerobic propagation of *pseudomonas methylotropa*, *microcylus polymorphum*, *Hyphomicrobium variabile* or *Pseudomonas rosea* strains (or their mixts) in suitable culture media contg MeOH (0.05-10 wt%, esp. 0.1-7.5 wt%), and the other usual nutrients (esp.  $\text{NH}_3$ ,  $\text{NH}_4$  salts, urea or nitrates; Ca, Cu, Fe, Co or Mn; S, P, Mg, K and/or Na), at 20-50° (pref 34-45°). Prefd. bacterial strains are NCIB 10508-10517 and 10592-10612. The bacterial cells are collected and dried to obtain a protein-rich foodstuff for human and animal consumption. 9.12.71 as 161164 (16pp047)

**PURF ★ D16 86573 C/49 ★ DT 3007-869**  
Chromatographic carrier particles with thin surface coating - of ion exchange material, formed by adsorption then crosslinking

PURDUE FREDERICK CO 28.02.79-US-016031

A89 J01 S03 P42 (27.11.80) B01d-15/04 B01j-39 B05d-05 B05d-07 C03c-17 C04b-41/06

Prod. of a thin-film coating on a carrier (A) comprises contacting (A) with an adsorbate (B), for which the surface of (A) has an affinity, so as to form a thin layer (esp. only a monolayer) of (B). This layer is then crosslinked.

Pref. (A) are  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$  and  $\text{TiO}_2$  and (B) pref. has functional gps. which (i) react with the carrier surface and (ii) react with the crosslinking agent. (B) are particularly polyethyleneimine 6; 1,3-diamino-2-hydroxypropane; tetraethylenepentamine and ethylene-diamine, and cross-linking agents are alkyl bromides, epoxy resins (pref. polyfunctional) or nitroalcohols.

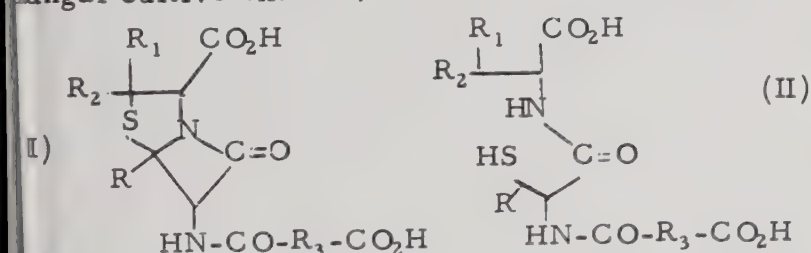
The coated materials are useful as packings for chromatography, esp. ion-exchange chromatography. Exemplified applications include isolating lactate dehydrogenase isoenzymes from rat kidney homogenate and sepn. of chlorinated phenoxyacetic acids at mononucleotides. Coatings are stable and can be formed reproducibly with uniform thickness. 28.2.80 as 007869 (54pp1251)

**MA SI ★ D16 86631 C/49 ★ DT 3018-767**  
Antibacterial iso:penicillin n derivs. prodn. - by incubating delta-L-alpha-adipyl-L-cysteinyl-D valine derivs. with cell-free extract of *Cephalosporium acremonium* in presence of ATP

MASSACHUSETTS INST TECH 17.05.79-US-040061

B02 (27.11.80) C07d-499/48

New process is claimed for the prodn. of isopenicillin N derivs of formula (I) from  $\delta$ 1(L- $\gamma$ -aminoadipyl)-L-cysteinyl-D-valine (LLD) derivs of formula (II) using a cell-free fungal culture extract.



$\text{R}_1$  and  $\text{R}_2$  are H, Me, Et, Pr or i-Pr; and  $\text{R}_3$  is  $-(\text{CH}_2)_3\text{-CH}(\text{NH}_2)\text{-}$ ,  $-(\text{CH}_2)_3\text{-CHBr-}(\text{CH}_2)_3\text{-CH}(\text{NH}_2)\text{-}$ ,  $-(\text{CH}_2)_3\text{-CH}(\text{NH}_2)\text{-}$ ,  $-(\text{CH}_2)_2\text{-CH}(\text{NH}_2)\text{-}$ ,  $-(\text{CH}_2)_4\text{-CH}(\text{NH}_2)\text{-}$ ,  $-\text{CH}_2\text{-S-}(\text{CH}_2)_2\text{-CH}(\text{NH}_2)\text{-}$ ,  $-\text{CH}(\text{CH}_3)\text{-S-CH}_2\text{-CH}(\text{NH}_2)\text{-}$  or  $-(\text{CH}_2)_4\text{-}$ .

In this process, (A) is an extract of *Cephalosporium acremonium* which is cell-free or contains only permeabilized cells, enzymes are inactivated which only have an effect in a later stage of the biosynthesis and effect conversions beyond the isopenicillin stage; (B) the starting material (II) the partially inactivated fungal extract, and ATP as energy source are mixed in a reaction vessel; and (C) the reaction components are left in the reaction vessel until (I) has been formed.

Isopenicillin N (i.e. (I),  $\text{R}=\text{H}$ ) is a  $\beta$ -lactam antibiotic differing from penicillin N in that the side-chain has L- instead of D-configuration. It is active only against gram-positive bacteria (penicillin N is active only against gram-negative

bacteria).

Simple and rapid procedure for producing relatively high yields of isopenicillin N and its derivs. 16.5.80 as 018767 (24pp280)

**MIWA/ ★ D16 86637 C/49 ★ DT 3018-899**  
Kit for teaching genetics laws - contains a nematode mutant or wild-type nematode, esp. a self-fruited hermaphrodite, to give results within a week

MIWA J 18.05.79-JA-060534

P14 (27.11.80) A01k-01/03

Teaching kit contains a nematode mutant or a wild-type nematode belonging to the strain *nematoda*, as the research animal.

The kit enables students to understand the laws of genetics by carrying out various genetic experiments, within a relatively short space of time (5 days for 2 generations c.f. a matter of years for doing the expt. with sweet beans). The nematodes can be stored for up to several years in semi-dried or frozen condition possibly in ampoules, are harmless and non-pathogenic and can easily be killed by throwing into hot water. 16.5.80 as 018899 (14pp1401)

**RESE D16 53867 B/29 = EP --18-967**  
Prod. of reagents for detecting prostatic cancer - comprising antibodies against acid phosphatase isoenzyme

RESEARCH CORP 04.01.78-US-866918

B04 J04 S03 (S05) (26.11.80) \*NL7900-059

D/S: E(CH, DT, FR, GB, SW)

20.11.78 as 79900093 (WP7900475)

**HOFF ★ D16 86696 C/49 ★ EP --19-054**  
Totally synthetic nutrient medium - useful in testing of potential therapeutic agents against infective microorganisms

HOFFMANN-LA ROCHE AG 21.02.80-GB-005883 (27.04.79-GB-014742)

A97 B05 (26.11.80) C12n-01 C12q-01/04

D/S: E(CH, DT, FR, GB, IT).

Nutrient medium is obtd. by dissolving, per l. distd. water, the following components (all in g.): 2-5.5  $\text{Na}_2\text{HPO}_4$ , 0.0005-0.005  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ , 0.001-0.01 folic acid, 0.0005-0.005  $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ , 0.0005-0.005  $\text{MnSO}_4 \cdot 4\text{H}_2\text{O}$ , 0.0005-0.005  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ , 0.0001-0.0005 D-biotin, 0.004-0.04 uracil, 0.004-0.04 guanine, 0.004-0.04 cytosine, 0.004-0.04 adenine, 0.001-0.01 Ca D-pantothenate, 0.001-0.01 nicotinamide, 0.001-0.01 pyridoxal HCl, 0.0001-0.005 thiamine HCl, 0.001-0.01 i-inositol, 0.0005-0.005 cyanocobalamin, 0.001-0.05 choline dihydrogen citrate, 0.1-0.4 glycine, 0.1-0.5 each of L-valine, L-lysine HCl, L-leucine, L-isoleucine, L-threonine, L-cystine and L-proline, 0.02-0.05 L-tryptophan, 0.05-0.3 L-tyrosine, 0.15-0.25 L-arginine, 0.025-0.2 L-histidine, 0.01-0.2 L-methionine, 0.1-0.4 L-phenylalanine, 0.05-0.5 L-asparagine, 0.01-0.1 L-serine, 0.01-0.1 L-alanine, 0.1-1 L-glutamic acid, 0.1-1 Mg glycerophosphate monohydrate, 0.05-0.5 Ca gluconate, 0.4-2  $\text{KH}_2\text{PO}_4$ , 1-4 D-glucose and 0.25-2 Na citrate dihydrate.

The nutrient medium can be readily prepd. from a single powdered material, it has good optical clarity and it is purely synthetic and reproducible. It is suitable as growth medium for all common bacteria and anaerobes which cause urinary tract, gastric, respiratory tract and soft tissue infections, and so is useful in the assay of micro-organisms or in the testing of potential therapeutic agents active against them.

17.3.80 as 101370 (22pp1248).

(E) ISR: US3936355; DT2301211; US3360440.

**HOFF ★ D16 86705 C/49 ★ EP --19-072**  
Penta:deca:peptide from *Streptovercillium* sp. ATCC 31499 - useful as an immuno:potentiating agent with very low toxicity

HOFFMANN-LA ROCHE AG 02.04.79-GB-011395

B04 (26.11.80) A61k-37/02 C07c-103/52 C07g-07 C12p-21

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

(A) Pentadecapeptide (I) and its salts are new when (a) it contains 1 mole arginine, 1 mole glutamic acid\*, 1



mole lanthionine, 2 moles  $\beta$ -methyl-lanthionine, 3 moles D-phenylalanine, 2 moles glycine, 1 mole proline, 1 mole valine, 1 mole aspartic acid  $\ast$ , 1 mole  $\beta$ -hydroxy-aspartic acid  $\ast$  and 1 mole lysinoalanine (the asterisks indicate that either 2 of these amino acids or one of them and the carboxy terminal amino acid are present as amides); and (b) as HCl salt, it has m. pt. 257-9°C (dec.) ( $\alpha_D^{25}$  -72° (c, 1 in 0.1N-HCl); UV maxima at 251.5 nm ( $E_{1\%}^{1\text{cm}}$  2.68), 257 nm ( $E_{1\%}^{1\text{cm}}$  2.9) and 263 nm ( $E_{1\%}^{1\text{cm}}$  2.29), and a shoulder at 266 nm in water; characteristic IR absorption spectrum; solubility in water or MeOH, hardly soluble in Et acetate and insoluble in hexane; positive to Sakaguchi and Reidon-Smith reactions, and negative to Pauly reaction; and TLC on silica gel F<sub>254</sub> in benzene/ethanol/25% aq. NH<sub>3</sub> (2:4:1 by vol.) shows  $R_f$  = 0.4.

(B) *Streptoverticillium griseoverticillatum* NAR 164C-MY6 (ATCC 31499) and its sub-cultures are new.

(I) induces release of an interferon-like substance in mouse spleen cells and exhibits a thymic hormone-like activity with antitumour activity, and it is therefore useful as immunopotentiating agent. It does not show toxic symptoms in mice perorally at 1000 mg/kg. Dose is 0.1-100 mg orally 1-4 times daily.

2.4.80 as 101769 (37pp1248).

(E) ISR: DT1965101; US4002602; J64017349; 5 Journal References.

LIND D16 81007 C/46 =EP--19-105  
Purificn. or sepn. of gases by pressure changes and adsorption - esp. in mfg. organic acids by biological oxidn. of polysaccharide(s) with oxygen

LINGENS & SOHNE (LINM) 24.04.79-DT-916585

E17 J01 (26.11.80) \*DT2916-585 B01d-53/04 + C12p-07/40

D/S: E(BE, DT, FR, GB, IT, NL).

A pressure swing adsorption process uses a row of switchable adsorbers, where each switching cycle consists of at least one adsorption phase, two expansion phases, one desorption phase, and compression. Desorption is achieved by scrubbing using an extra gas (II) which is then removed during one of the expansion phases of the initial gas mixt. (I).

Process is used esp. to separate reaction prods. from O<sub>2</sub>, where the latter is one of the constituents in the reaction and is recycled. The O<sub>2</sub> is pref. obtd. by the decompn. of air, the N<sub>2</sub> also obtd. being used as gas (II).

Optimum use of the adsorber capacity and min. loss of prod. gas, e.g. in mfg. organic acids by biological oxidn. of polysaccharides with O<sub>2</sub>.

22.4.80 as 102162 (16pp1144).

(G)ISR: —

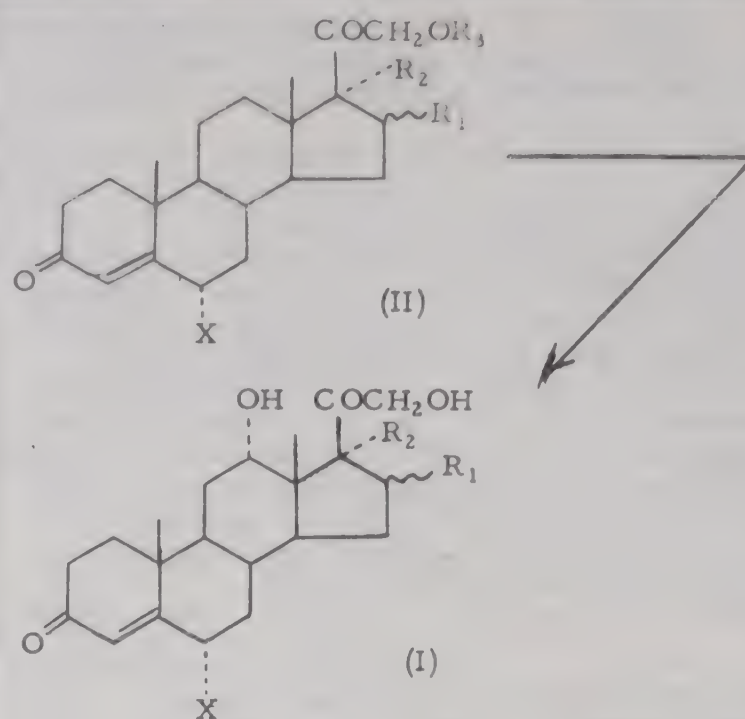
SCHD ★ D16 86728 C/49 ★EP--19-162  
12-Alpha-hydroxy steroid prodn. by microbiological hydroxylation - and new 12,21-di:hydroxy-4-pregnene-3,20-di:one derivs.

SCHERING AG 15.05.79-DT-919984

B01 (26.11.80) C07j-05 C07j-71 C12p-33/06

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

(A) Prod'n. of 12 $\alpha$ -hydroxy steroids of formula (I) comprises fermenting steroids of formula (II) with a culture of *Cereospora kaki* (CBS 12839):



(X is H or F;

R<sub>1</sub> is H or Me and R<sub>2</sub> is H or OH, or R<sub>1</sub> + R<sub>2</sub> is isopropylidenedioxy;

R<sub>3</sub> is H or 1-6C alkanoyl).

(B) 12 $\alpha$ , 17 $\alpha$ , 21-Trihydroxy-4-pregnene-3,20-dione (Ia), 12 $\alpha$ , 17 $\alpha$ , 21-trihydroxy-16 $\alpha$ -methyl-4-pregnene-3,20-dione (Ib) and 12 $\alpha$ , 21-dihydroxy-6 $\alpha$ -fluoro-16 $\alpha$ -methyl-4-pregnene-3,20-dione (Ic) are new cpds.

(I) are intermediates for pharmacologically active steroids, e.g. for antiinflammatory 12-halo-11 $\beta$ -hydroxy steroids.

2.5.80. as 102384 (8pp367).

(G) ISR: GB-892589; 4 Journal References.

FARB ★ D16 86750 C/49 ★EP--19-215  
Denatured polyaddition prod. from biomass and isocyanate - useful as fertiliser, reactive filler for plastics, moulding compsn. or binder

BAYER AG 21.05.79-DT-920525

A11 C04 F09 (A81 A97) (26.11.80) C02f-11 C05f-07 C08g-18/64 C08l-97/02 C12n-11/08

D/S: E(BE, DT, FR, GB, IT, NL).

Prod'n. of denatured polyaddition prods. (I) from biomasses (A) and isocyanates (B) comprises reacting 5-98 wt.% (A) of microbial origin (or their metabolites or degradation prods.) with 95-2 wt.% isocyanate-contg. cpds. (all % a total of (A) plus (B)), opt. in presence of water and/or organic solvents or organic and/or inorganic additives at > 50°C until (A) is completely denatured.

Suitable (A) are aq. or dried activated sludges from industrial or domestic waste (opt. subjected to aerobic or anaerobic compositing); yeast from various industrial processes (i.e. alcohol, acetic acid, lactic acid, citric acid, tartaric acid or protein prodn. from gasoline, paraffin, CH<sub>4</sub> or MeOH; or biomass from antibiotic (esp. penicillin, tetracycline or sisomycin) prodn. Pref. (B) includes mono- or poly-isocyanates used as liq. or as soln. in an organic solvent.

(I) are useful as plant nutrients; as thermoformable moulding compsns.; reactive fillers for plastics; and as binders in prodn. of boards, etc. by hot-pressing lignocellulose contg. raw materials.

(A) are converted to useful prods. which are odourless, sterile, easily filtered, dried without excessive heat requirements and storage stable.

8.5.80 as 102522 (87pp1251).

(G)ISR: US4021368; DT2208644; DT2410693; US3976465; FR1272044; FR2314196; DT2625471; EP--10243.

CUTT ★ D16 86753 C/49 ★EP--19-218  
Cultivating influenza virus for vaccine prodn. - in liq. cell cultures in presence of proteolytic enzyme

CUTTER LABS 15.05.79-US-039236

B04 (26.11.80) A61k-39/14 C12n-05 C12n-07

D/S: E(BE, CH, DT, FL, FR, GB, IT, NL, OE, SW).



rodn. of a vaccine against influenza virus comprises first infecting some cells of a liq. cell culture with the virus and incubating in the presence of a proteolytic enzyme under conditions which ensure infection of, and multiplication of virus in cells other than those originally inoculated. The virus is then recovered and converted to vaccine.

Prof. enzymes are trypsin, chymotrypsin, pepsin, pancreatin, papain, pronase and carboxypeptidase and the virus is pref. of human or horse influenza. The cell culture esp. consists of canine kidney cells.

Vaccines, free from egg proteins, prepd. from the viruses are also claimed.

The method avoids the need for large numbers of hen eggs in which to grow the virus (and potential toxicity problems from residual egg proteins). The enzymes ensure easy infection of cells not originally inoculated so the 'one-step growth cycle' limitation of known liq. culture methods is overcome and the virus yield is increased  $10^3$ - $10^4$  times.

21.5.80 as 102525 (27pp1251).

(G)ISR: \_\_\_\_\_

**FILE ★ D16 86766 C/49 ★EP--19-253**  
Determn. of tri:glyceride(s) in biological fluids - by hydrolysis with lipase and cholesterol esterase then glycerol assay  
MILES LABORATORIES INC 21.05.79-US-040559  
B04 (26.11.80) C12q-01/44  
D/S: E(DT,FR,GB,IT,SW).

Determn. of triglycerides (I) in an aq. medium involves contacting the medium with a mixt. of lipase and cholesterol esterase to hydrolyse (I) to free fatty acids and glycerol (II). The amount of (II) is determined to give a value for (I) originally present.

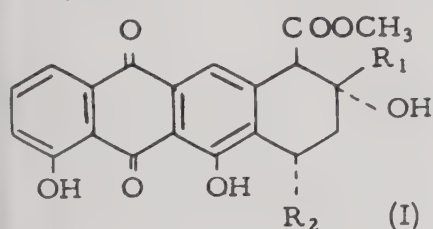
(I) levels in biological fluids are used in clinical diagnosis, esp. in screening for coronary artery disease, diabetes mellitus, nephrosis, biliary obstruction and various metabolic disorders caused by endocrine disturbances. The procedure is economical and rapid.

2.5.80 as 102614 (27pp1248).

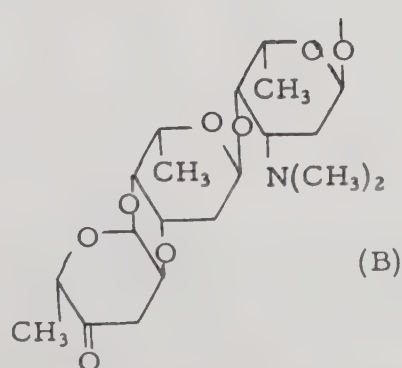
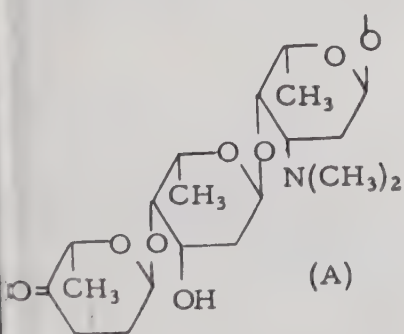
(E)ISR: US4056442; US3869349; FR2362399; FR2274686; DT2323609; DT2535953; EP--10296

**OFF ★ D16 86784 C/49 ★EP--19-302**  
Tetracyclic antibacterial and antitumour agents - prepd. by cultivating *Streptomyces galilaeus*  
HOFFMANN-LA ROCHE AG 22.05.79-GB-017763  
B05 (26.11.80) A61k-31/71 C07c-69/95 C07h-15/24 C12p-19/56 C12p-29  
D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

Tetracyclic cpds. of formula (I) are new:



( $R_1$  = CH<sub>3</sub> or acetyl;  
 $R_2$  = H, OH or a gp.  
of formula (A) or  
(B).



Cpds. with  $R_2$  = H or OH are intermediates for other tetracyclic antibiotics; those with  $R_2$  = A or B have antibacterial and antitumour activity. Auramycin A has intraperitoneal LD<sub>50</sub> in mice about 100 mg/kg and the usual dose in 20-30 mg/day orally or intravenously.

21.5.80 as 102827 (34pp1251).

(G)ISR: DT2715255; CH-374146.

**JAPG ★ D16 86823 C/49 ★EP--19-404**  
Blending vinyl chloride resin prepn. - by suspension polymerising monomer(s) using protein suspending agent and treating polymer with proteolytic enzyme  
NIPPONZEON KK 02.05.79-JA-054487  
A14 (26.11.80) C08f-06/24 C08f-14/06  
D/S: E(DT, FR, GB, NL)

(A) Prepn. of a blending vinyl chloride resin (I) comprises suspension polymerising vinyl chloride and opt. comonomer in aq. medium using water soluble protein suspending agent and treating the resulting polymer with a proteolytic enzyme. Pref. protein is used in amt. of 0.02-2 pts. wt. per 100 pts. wt. monomer(s) and the enzyme is pref. used in amt. of 0.0001-5 pts. wt. per 100 pts. wt. polymer.

(B) Paste dispersion comprising (I) and a paste vinyl chloride resin is also claimed.

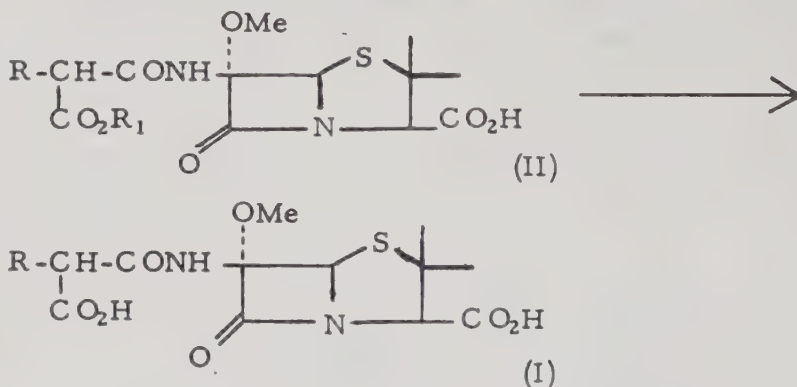
Use of the protein provides spherical polymer particles pref. of dia. 10-80  $\mu$  suitable for blending and treatment with the enzyme removes surface skin of protein from the particles that would otherwise reduce the affinity of the blending polymer particles for the paste resin. Paste dispersion (B) has excellent viscosity props. for producing mouldings with superior tensile strength, abrasion resistance, weatherability and water resistance.

2.5.80 as 301465 (19pp966)

(E)ISR: US3049521; GB1069364; FR2369595.

**BEEC ★ D16 86824 C/49 ★EP--19-409**  
Alpha-carboxy-6-alpha methoxy penicillin derivs. prepn. - by enzymatic hydrolysis of corresp. ester using e.g. bromelain  
BEECHAM GROUP LTD 15.05.79-GB-016773  
B02 (26.11.80) C07d-499/72 C12p-37  
D/S: E(BE, CH, DT, FL, FR, GB, IT, NL, OE, SW).

Prepn. of penicillin derivs. of formula (I) comprises enzymatically hydrolysing the corresp. ester (II) with bromelain, papain, gelatase, trypsin, pancreatin or an esterase-producing strain of *Escherichia coli*, *Pseudomonas aeruginosa*, *Aspergillus niger* or *Saccharomyces* sp.



(R is phenyl or 2- or 3-thienyl; and  $R_1$  is aryl)

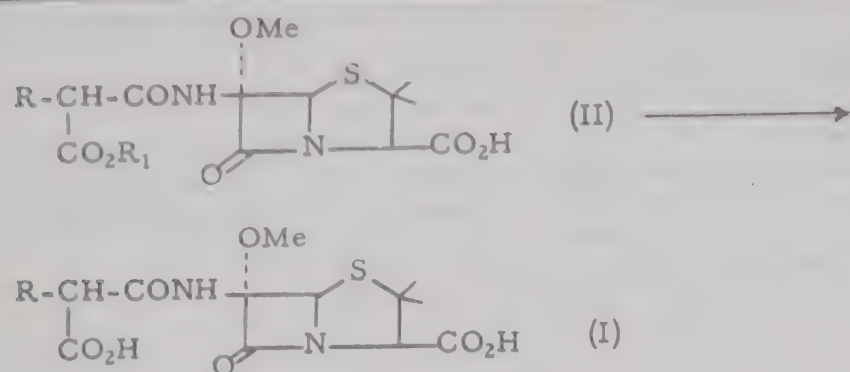
7.5.80 as 301478 (14pp985).

(E)ISR: GB1160211.

**BEEC ★ D16 86825 C/49 ★EP--19-410**  
Alpha-carboxy-6-alpha-methoxy penicillin derivs. prepn. - by enzymatic hydrolysis of corresp. ester using chymotrypsin or esterase-producing *Streptomyces* strain  
BEECHAM GROUP LTD 15.05.79-GB-016921  
B02 (26.11.80) C07d-499/72 C12p-37  
D/S: E(BE, CH, DT, FL, FR, GB, IT, NL, OE, SW)

Prepn. of penicillin derivs. of formula (I) comprises enzymatically hydrolysing the corresp. ester (II) with  $\alpha$ -chymotrypsin or an esterase producing strain of *Streptomyces* sp.





(R is phenyl or 2- or 3-thienyl; and  $R_1$  is an ester forming gp., pref. opt. substd. alkyl, aryl or aralkyl).

7.5.80 as 301479 (18pp985)

(E) ISR: GB1160211.

CARL- ★ D16 86850 C/49 ★EP--19-462  
Coating hop resin onto hydrophobic supports - e.g. powdered polyethylene to facilitate solvent free processing and handling

CARLTON & UTD BREWE 22.01.80-AU-002085 (15.05.79-AU-008792)

A97 (26.11.80) C12c-09/02

D/S: E(BE, CH, DT, FL, GB, NL)

A complex organic mixt. (A), specifically hop resin, is coated before solvent-free processing or handling onto an inert hydrophobic support (B), pref. by dispersing (A) and (B) in a medium, esp. water, at a temp. at which (A) is liq. The method can be used to separate (A) from an aq. phase.

(B) is pref. a finely powdered alkylene or fluorinated hydrocarbon polymer, vinyl (co)polymer or polyamide, esp. polyethylene, PTFE, polyethyl vinyl acetate or PVP.

The method is esp. used for selective recovery of hop resin and the coated support can then be extracted (a) with aq. alkali salt soln. to selectively recovery  $\alpha$ -acids and (b) with aq. alkali to extract  $\beta$ -acids. Opt. the  $\alpha$ -acids are isomerised (with alkali (hydr)oxide) or isomerised and reduced (metal hydrides) on the support before extraction. The method allows resins to be converted to stable dispersions which do not adhere to vessel walls etc. and which are easily stirred, pumped etc. The  $\alpha$ -acids can be recovered at lower pH with reduced decomposition.

15.5.80 as 301586 (19pp1251)

(E) ISR: DT1927996; DT2658633; US3794744; DT2833588; FR2030133.

DFOR- ★ D16 86855 C/49 ★EP--19-474  
Copper, zinc-superoxidedismutase recovery from yeast - by subjecting yeast to plasmolysis then autolysis, removing ppte. from autolysis liq. and isolating prod. from residual liq.

DE FORENEDE BRYGGER 17.05.79-DK-002033

A97 B04 (26.11.80) C12n-09/02

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW)

Recovery of Cu, Zn-superoxide dismutase (SOD) from yeast comprises (i) subjecting the yeast (a) to plasmolysis by adding a small amt. of water-immiscible organic solvent (pref. ether), and (b) to subsequent autolysis in water at 25-50°C/pH 5-9; and (ii) removing the ppte. and purifying and isolating the SOD from the residual liq.

Pref. autolysis takes place at 45°C/pH 7-8; and undesirable proteins are removed by adjusting the pH of the autolysis suspension to 4.0-5.5 and removing the ppte. by centrifugation or filtration. Pref. low molecular impurities are removed from the residual SOD fraction by diafiltration, and the SOD fraction is then purified by ion exchange chromatography on carboxymethyl cellulose at pH 4.7-5.5 (see EP--19477).

Cu, Zn-SOD enzymes are found in the cytoplasm of eukaryotes, and they protect the cells in aerobic organisms against the toxic effects of the superoxide radical. Since it is believed that the superoxide radical is involved in various inflammatory processes in the tissue, Cu, Zn-SOD has been proposed for treating inflammations and

perhaps rheumatoid arthritis.

16.5.80 as 301614 (13pp914)

(E) ISR: US3763137; 9 Journal references.

DFOR- ★

D16

86858 C/49 ★EP--19-477

Copper, zinc-superoxidedismutase isolation from aq. soln. - by chromatography on cation exchange resin of same polarity as the enzyme

DE FORENEDE BRYGGER 21.04.80-DK-001687 (17.05.79-DK-002033)

A97 B04 (26.11.80) C12n-09/02

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW)

Isolation of Cu, Zn-superoxide dismutase (SOD) from aq. solns. contg. this enzyme together with accompanying proteins comprises subjecting the soln. at pH 4.7-5.5 to chromatography on a cation exchange resin of the same polarity as SOD in the pH range used.

Pref. the resin is carboxymethyl cellulose, crosslinked dextran substd. with carboxymethyl or sulphopropyl gps., or crosslinked agarose substd. with carboxymethyl gps.

Cu, Zn-SOD enzymes are found in the cytoplasm of eukaryotes, and they protect the cells in aerobic organisms against the toxic effects of the superoxide radical. Since it is believed that the superoxide radical is involved in various inflammatory processes in the tissues, Cu, Zn-SOD has been proposed for treating inflammations and perhaps rheumatoid arthritis.

The above process allows isolation of Cu, Zn-SOD from aq. extraction solns. (e.g. obtd. by extracting minced tissue with cold buffer soln., or by haemolysis of blood erythrocytes, or by plasmolysis and autolysis of yeast (see EP--19474)), giving a very high yield of very pure enzyme. The process is applicable industrially.

16.5.80 as 301619 (15pp914)

(E) ISR: US3763137; DK-131091.

PENT- ★

D16

86899 C/49 ★EP--19-589

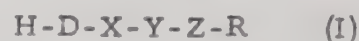
Tripeptide derivs. with C-terminal chromophore gp. - useful as substrates for assaying proteolytic enzymes, e.g. kallikrein or thrombin

PENTAPHARM AG 06.05.80-CH-003515 (11.05.79-CH-004412)

B05 J04 (26.11.80) C07c-103/52 C12q-01/36

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

Tripeptides of formula (I) and their salts with acids are new:



(X = (a) cyclohexylglycyl, cyclohexylalanyl, p-hydroxy-cyclohexylalanyl, phenylglycyl, phenylalanyl, tyrosyl; or (b) leucyl, isoleucyl, norleucyl, valyl, norvalyl,  $\alpha$ -amino-butyryl, alanyl, prolyl or pipecolinyl;

Y is as X, gp. (a), or, provided X is one of gp. (a), Y can be one of gp. (b) above;

Z = Arg or Lys;

R = a chromogenic gp. which can be cleaved by enzymatic hydrolysis to release a coloured or fluorescent cpd.).

(I) are substrates for quantitative determination of proteolytic enzymes, particularly of the class E.C. 3.4.21, and specifically kallikrein, plasmin and thrombin in body fluids. They can also be used to assay inhibitors and activators of such enzymes.

8.5.80. as 810155 (93pp1251).

(G) ISR: FR2353063; FR2183188; US4061625; US4147692; DT2629067; DT2527932.

BOUR/ ★

D16

86910 C/49 ★FR 2449-40

Treating Paris mushrooms for storage or deep freezing - using a liquid which is an extract of mushroom peelings

BOURNIER E 21.02.79-FR-004615 (04.09.72-FR-031308)

(24.10.80) A23b-07 A23l-01/28 A23n-15

The mushrooms are placed in a sealed area, the pressure is reduced to 25 or 50 mm Hg, and they are contacted with a liquid which penetrates the mushrooms when the vacuum is broken.

The improvement comprises using as the liquid (a) water used for blanching the mushrooms or (b) juice extracted cold or hot and under pressure from the peeling wastes detached from the mushrooms in their prepn.



The pref. liquid is (D) prepd from the roots and esp. after concn. at low temp to 5-10%, 20 or 30% solids. To the extract, egg white or milk albumin is pref added. The mushrooms absorb 250-300 g liquid/kilo; they are then blanched. 21.2.79 as 004615 Add to 4.9.72-031308(3pp597)

**BATT** D16 19747 Y/11 =GB 1580-361  
Automatic heated block type incubator - for biochemical analyser system has bottom loading block slidably indexed on support plates  
MICROMEDIC SYST INC 17.06.76-US-697172

J04 S03 S05 (03.12.80) \*US4011-048 B011-07 + G01n-35/02  
Incubation apparatus for automated biochemical analyser systems includes a thermally conductive block with a temperature controller and rows of regularly spaced wells extending from the bottom surface. Sample carriers can be raised into and lowered from the wells.

A pair of thermally insulating flat plates are in the same plane with one fixed and the other slidable in the plane to create a gap through which the block can be loaded and unloaded. The block is pref. of aluminium and the plate may be movable by friction between block and plate. The wells are pref. flared and each has an ejector rod. 23.3.77 as 012143 (9pp1358)

**BRPE** D16 13391 A/07 =GB 1580-439  
Microbial biomass and hetero-polysaccharide bio polymer prodn. - by growing methane utilising microorganisms in an aq. broth contg. nitrogen nutrients, useful as meat substitutes

BRITISH PETROLEUM LTD 29.07.76-GB-031639  
A11 G03 H04 (A97 D12 H01) (03.12.80) \*NL7708-270 C12r-01/26 + C12n-01 C12p-19

Prod'n. of microbial biomass and a heteropolysaccharide biopolymer comprises cultivating in an aq. nutrient medium and a N source in the presence of a gas contg. CH<sub>4</sub> as C source and a gas contg. free O<sub>2</sub>, >1 strain of a methane-utilising and extra cellular heteropolysaccharide biopolymer forming methylmonas bacterium.

Pref. the methylmonas strain can form an extra cellular biopolymer comprising glucose, fucose, mannose, galactose and uronic acid residues. Prods. are useful as thickeners e.g. in foods and drilling muds. 28.7.77 (21pp936)

**CNRS** D16 75940 Y/43 =GB 1580-539  
Orally administrable antiparasitic vaccine - for immuno-prophylaxis of trichostrongylosis, strongylosis etc. opt. administered with adjuvants such as tetramisole and levamisole  
INST NAT SANTE RECH MED 25.06.76-FR-020178  
B04 C03 (03.12.80) \*BE-855-776 A61k-39

Anti-parasitic oral vaccines are prepd. by (i) collecting infesting larvae of the parasite, (ii) culturing in a protein free synthetic culture medium which is also free of antigenic substances until an optimum yield of secretion and excretion metabolic antigens of the parasite are obtd., (iii) sepg. the metabolic antigens from the culture medium and (iv) formulating them into an orally acceptable form to give optimum protection against the parasites

Pref. adjuvant(s) are added to the vaccine. Pref. collection is from a parasitic animal material as a function of the biological cycle of the parasite. The vaccine is esp. against Trichinella spiralis. 22.6.77 as 026024 (7pp974)

**CART-** D16 72831 Y/41 =GB 1580-843  
Filter board for wine or oil filter press - with two or more combined layers of different permeability

CARTIERA SENTINO 02.04.76-IT-009401  
(D23) (03.12.80) \*DT2713-830 + B01d-29/04  
Filter sheet has two superposed layers each with an impermeable edge and of different porosity to retain larger and smaller particles. The layers are formed separately but are bonded together peripherally with impermeability provided by an impregnant.

There is pref. an anti-hair layer in face-to-face contact with the lowest porosity layer and forming an outer surface of the sheet. There may be three layers of progressively decreasing porosity, and the impregnant may be paraffin wax. 29.3.77 as 013032 (4pp1358)

**NORD** D16 46849 Y/26 =GB 1580-844  
Feline viral rhinotracheitis vaccine prepn. - by modifying virus with DNA inhibitor and UV light treatment  
NORDEN LAB INC 30.03.76-US-671792  
B04 C03 (03.12.80) \*US4031-204 A61k-39/26

Modified live feline rhinotracheitis vaccine capable of inducing immunity in animals of genus felidae comprises a modified live feline viral rhinotracheitis virus, and a carrier. The virus is prepd. by chemically modifying a feline viral rhinotracheitis virus with a DNA inhibitor so that it grows well at 30°C±2°C. but not at 39°C. The virus is then irradiated with UV light, until 90-99 (95-99)% of the virus particles are killed. Pref. the chemically modified feline viral rhinotracheitis virus is ATCC No. VR814.

The vaccine may be administered intranasally and also to pregnant cats. 29.3.77 as 013230 (8pp965)

**RESE** ★ D16 87014 C/49 ★GB 2047-889  
Serological testing for Chlamydia trachomatis antibodies - by micro-immuno-fluorescence test with formaldehyde-stabilised antigen  
RESEARCH CORP 02.04.79-US-026174  
B04 J04 S03 (03.12.80) G01n-33/54

Serological testing of sources suspected of contg. Chlamydia trachomatis antibodies involves subjecting the sources to a microimmunofluorescence test. In this test an elemental body antigen previously stabilised by treatment with CH<sub>2</sub>O and derived from C. trachomatis is used for detection of an antigen-antibody complex.

Immunologically inert substrate having an elemental body antigen of C. trachomatis previously stabilised by CH<sub>2</sub>O adhering to it is new.

The stabilised antigens do not have reduced specificity or sensitivity and tests can be performed with antigen that has been stored, e.g. at 4 degrees C for at least 12 months. With the stabilised antigen the hazard of laboratory infection is eliminated. The technique with the antigen is greatly improved so that screening programs can be carried out in non-specialised laboratories. C. trachomatis organisms are the etiological agents for a number of ocular-genital diseases in humans, esp. non-gonococcal urethritis. 31.3.80 as 010745 (7pp1248)

**MEIP** ★ D16 87022 C/49 ★J5 5072-120  
Increasing yield of interferon - by adding one or more types of lactic acid bacteria  
MEIJI MILK PRODS KK 27.11.78-JA-145353  
B04 (30.05.80) A61k-45/02

Process for prodn. of interferon in increased yield comprises adding one or more kinds of Lactic acid bacteria as interferon-inducing substance.

Interferon has a wide range of antiviral spectra with very high selectivity leading to specific inactivation of virus without destroying the host cells.

Strains of Lactic acid bacteria which may be used include Lactobacillus bulgaricus, jugurti, helveticus, casei, acidophilus, or lactis, or Streptococcus lactis, cremoris, diacetylactis, or thermophilus.

The bacteria is cultured in lactic acid bacteria-culture medium which may contain 10 g. yeast extract, 10 g. peptone, 10 g. glucose, 3 g./l. sodium acetate and has a pH of 6.5. 27.11.78 as 145353. (3pp69)

**AMAN** ★ D16 87072 C/49 ★J5 5085-398  
Determin. of coenzyme activity immobilised on water-insoluble carrier - by mixing with buffer contg. electrolyte, measuring voltage change and comparing with standard  
AMANO PHARM KK 22.12.78-JA-157547  
(28.06.80) C12q-01/26

The activity of Coenzyme fixed on a water-insoluble carrier is evaluated by mixing sample enzyme with a buffer soln. contg. electro-conductive substance, and the electrical change is measured in terms of electric voltage change.

The results are compared with a standard sample. The method can be used for measurement of enzyme activity of oxidn.-redn. enzymes. The carrier includes cephalose gel, glass bead, etc. The electro-conductive substance in-



clude phenazine mesosulphate, Flavin mono-nucleotide, 2,6-dichloro phenol indophenol etc. The coenzyme used is one corresponding to the enzyme to be measured in its activity. By the present method, activity of enzyme can be measured accurately in a simple procedure by electro current measurement. 22.12.78 as 157547. (3pp22)

CHIN ★ D16 87082 C/49 ★ J5 5104-895  
Prod. of sisomycin antibiotic - by culturing *Micromonospora rosea* strains, isolating, and converting to salt

CHINOIN GYOGYSZER 06.02.79-HU-C11911

B04 (11.08.80) C12p-19/54 C12r-01/29

Prod. of "Sisomicin" as an antibiotic material is claimed where *Micromonospora rosea*, more desirably strains of MNG 00182 are aerobically cultured in a nutritious culture medium contg. assimilable C source, N source and inorganic salts and the sisomicin is isolated from the culture medium. Other kinds of attendant antibiotic materials are sepd. out to obtain the purified sisomicin which is then converted into a pharmacologically acceptable salt.

The culturing process is carried out at 25-40°C pref. 28-33°C.

The culture medium contains soyabean meal, peptone, hydrolysed material of casein, potato starch, corn starch, dextrin, aq. soluble starch, glucose, CaCO<sub>3</sub>, Fe sulphate, Mg sulphate, Co nitrate and palm oil.

The Sisomicin has a microbicidal effect against Gram-positive and -negative bacteria. 5.2.80 as 012130. (7pp)

SHOW ★ D16 87201 C/49 ★ J5 5135-587  
Culturing *Methylomonas* SD-13 - with methanol as the major carbon source, bacteria have high protein and vitamin content and can form inexpensive nutritious feed

SHOWA DENKO KK 09.04.79-JA-041930

(D13) (22.10.80) A23k-01 C12n-01/32 C12r-01/26

Culturing the bacterial strain, *Methylomonas* SD-13 which can utilise methanol, comprises using a culture medium contg. methanol as major carbon source and sepg. the reproduced bacteria. The bacterium grows well in the culture medium contg. methanol, an inexpensive easily obtainable substance, as the major carbon source prepd. from sewage. Bacteria obtd. have high protein and vitamin content and inexpensive nutritive feed can be prepd. from them.

*Methylomonas* SD-13 is known to the Institute for Microbial Industry as FERM-P 4909. The bacteria strain requires vitamin B1 and ammonium salt as a nitrogen source. The methanol concn. in the culture medium is pref. < 3% and methanol is added intermittently during the culture. The culture is kept at 37°C and pH 6.6 aerobically. The yield of the bacterial body is ca. 40% on methanol and the dry bacterial body contains 82.3% crude protein, 0.5% crude fat, 15.7% nucleic acid and 5.2% moisture. 9.4.79 as 041930. (4pp5)

MITP ★ D16 87202 C/49 ★ J5 5135-588  
Thermostable catalase prepn. - from liq. culture of bacterial strain *Thermus*

MITSUBISHI PETROCH KK 03.04.79-JA-040100

B04 (22.10.80) C12n-09/08 C12r-01/\*

After culturing the bacterial strain *Thermus* in liq. culture medium with aeration and stirring, thermostable catalase can be recovered from the bacteria.

Catalase has been used widely for diagnostic tests, food preservation, food sterilisation, etc. and as medicine. *Thermus* are highly thermophilic bacteria and produce thermostable catalase.

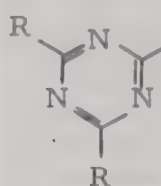
The culture is kept at 45-85°C pref. at 70-85°C at initial pH 6.5-8.0 with aeration and stirring for 2-10 hrs. The thermostable catalase has optimum pH 9-11 and optimum temp. of 70°C. It can be activated by heating, e.g. to 77°C for 0.5-3 hrs., the activity can be mixed to 150% of the original. 3.4.79 as 040100. (4pp5)

MIHA/ ★ D16 87203 C/49 ★ J5 5135-590  
Modified asparaginase and uricase - substd. by triazinyl gp. to reduce antigenicity

MIHAMA H 05.04.79-JA-041203

B04 (22.10.80) A61k-37/54 C12n-09/82

Modified asparaginase and uricase having reduced antigenicity where amino gp. in L-asparaginase or uricase molecule is partially substd. with gp. of formula:



(I)

(where R is water soluble high molecular residue of mol. wt. over 2000); R is pref. O-subst. -polyethylene glycol residue, esp. O-methoxy polyethylene glycol residue of mol. wt. over 5000. Pref. ca. 50% of amino gp. in asparaginase molecule is substd. with 2,4-bis-(O-methoxypolyethyleneglycol)-s-triazine-

6-yl of mol. wt. 5000.

Prod. of modified asparaginase comprises treating L-asparaginase or uricase with 2,4-bis-(O-subst. -polyethyleneglycol)-6-chloro-s-triazine.

L-Asparaginase may be used as antitumour drug for certain cells which require L-asparagin as necessary nutrient. Modified uricase can be administered to arthritis urica patients. 5.4.79 as 041203. (4pp69)

TAKG ★ D16 87204 C/49 ★ J5 5135-592  
Immobilisation of enzyme or mycelium - using as substrate neutralised basic aluminium salt

TAKI KAGAKU KK 09.04.79-JA-043493

(22.10.80) C12n-11/14

Enzyme (I) or mycelium (II) is fixed on substrate formed by neutralisation of basic aluminium salt (III). As (III) is easily available in the market, (I) or (II) is fixed inexpensively according to the present method.

A cpd. represented by the formula:  $Al_m(OH)_nX_{3m-n/p}$  (X = anion; p = valence of X; m and n are exponential factor;  $3m > n$ ) is used as (III).

Typical X are Cl, NO<sub>3</sub>, SO<sub>4</sub>, etc. Alkalinity,  $(n/3m \times 100)$ , is usually 30-85%. Typical (III) are basic aluminium chloride, basic aluminium nitrate, basic aluminium sulphate, etc. A part of Al in the formula may be substd. by Fe. For the immobilisation of (I) or (II), a soln. contg. (III), and (I) or (II) is neutralised, or (I) or (II) is mixed with the prod. formed by neutralisation of (III). After formation of the gelatinised prod. contg. (I) or (II), it is sepd. from the soln. and vacuum-dried. (III) should be neutralised until pH of the soln. reaches 5-8. 9.4.79 as 043493. (4pp42)

DNIN ★ D16 87205 C/49 ★ J5 5135-593  
Dicarboxylic acid prodn. from *Pichia carboferus* culture - using cheap hydrocarbon starting material

DAINIPPON INK CHEM KK (DNII) 06.04.79-JA-041005

A41 E19 (22.10.80) C12p-07/44 C12r-01/84

Dicarboxylic acid (I) is produced by aerobic incubation of *Pichia carboferus* (II), which will form (I) by oxidn. of hydrocarbon (III), in a culture medium contg. (III) as carbon source, or by aerobic reaction of (III) in the presence of (II).

*Pichia carboferus* KR 128 and *Pichia carboferus* KR 128-50 are used as (II). These mutants are derived from *Pichia carboferus* irradiated by X-ray, ultraviolet ray, etc., or treated with N-methyl-N<sup>1</sup>-nitro-N-nitroso guanidine to suppress its digestion of (I). The conc. of (III) in the culture medium is 1-20%, e.g. (5-15%). Sugars such as sucrose, glucose, sorbitol, etc. pref. are used as carbon source with (III) in the culture medium.

(I) is used for prepn. of crosslinking agent of powder pigment, polyamide resin, plastics, perfume, etc. (I) having more than 12C atoms is produced inexpensively. 6.4.79 as 041005. (6pp42)

HAYB ★ D16 87206 C/49 ★ J5 5135-594  
Modifying activity of amylase inhibitor - useful for treatment of diabetes and obesity on oral or parental admin.

HAYASHIBARA BIOCHEM 09.04.79-JA-042057

B04 (22.10.80) C12n-09/99 C12p-21

The process comprises reducing the activity for inhibiting



glucanephosphorirase by treating  $\alpha$ -amylase with amylase inhibitor having activity that inhibits glycosido hydrolase and activity that inhibits  $\alpha$ -glucanephosphorirase.

Amylase inhibitor inhibits glycosidohydrolase such as  $\alpha$ -amylase, glycoamylase,  $\alpha$ -glucosidase and the inhibitor produced from various origins such as higher plants or microbes. The substance is useful as preventive drug or remedy for diabetes mellitus and fatness on oral or parenteral admin. 9.4.79 as 042057. (4pp69)

**UJIN ★ D16 87208 C/49 ★ J5 5135-597**  
Amoxicillin prodn. - by treating 9-amino-penicillanic acid with 5-(p-hydroxyphenyl) hydantoin in presence of flavobacterium strain AJINOMOTO KK 10.04.79-JA-042572  
B02 (22.10.80) C12p-37/04 C12r-01/20

Process comprises treating 6-aminopenicillanic acid with 5-(p-hydroxyphenyl)hydantoin in the presence of cultured mixt. of Flavobacterium microorganisms capable of synthesising Amoxicillin from 6-aminopenicillanic acid and 5-(p-hydroxyphenyl)hydantoin or treated cultured mixt. Amoxicillin (6- $\beta$ -D-(-)- $\alpha$ -amino-D-hydroxyphenylacetamido)penicillanic acid) is an excellent antibiotic having strong antibacterial power to gram-positive and -negative bacteria in a wide range is used in chemotherapy treating infectious diseases. 10.4.79 as 042572. (7pp69)

**IGAKU ★ D16 87258 C/49 ★ J5 5135-752**  
Determin. of immunoglobulin E in human blood - by enzyme immuno process using antibody labelled with enzyme  
IGAKU SEIBUTSUGAKU 09.04.79-JA-043863  
A96 B04 J04 (22.10.80) G01n-33/54

Anti-human immunoglobulin E is insolubilised with immunoglobulin E in human blood (antigen), and the resultant substance is treated with anti-human immunoglobulin E antibody labelled with enzyme to form combined substance comprising insolubilised antibody-antigen-enzyme-labelled antibody and enzyme activity is determined to determine amt. of antigen.

Determin. of immunoglobulin E in human blood (1) using antibody labelled with enzyme a substance prepd. by purifying partially anti-human immunoglobulin E originating from goat with diethylaminoethylcellulose, then bonding the partially purified substance with pepsin into Fab fragment and bonding the fragment with  $\beta$ -D-galactosidase originating from Bacillus soli Mig. (Escherichia coli), and (2) using as substrate 2-nitrophenyl- $\beta$ -D-galactopyranoside and determining amt. of resultant O-nitrophenol to calculate enzyme activity. Pref. carrier is polystyrene ball. 9.4.79 as 043863. (6pp69)

**FEU- ★ D16 87363 C/49 ★ J5 5136-217**  
Soluble intestine enzyme drug prepn. - by kneading a carboxyalkyl-cellulose deriv. soln. with powdered enzyme and moulding  
FREUND SANGYO KK 12.04.79-JA-043615  
A96 B04 (23.10.80) A61k-09/16

Method comprises kneading a soln. of a carboxyalkyl-cellulose deriv. (I) with a powdery enzyme and moulding.

In (I), Gul is anhydrous glucose unit of cellulose ( $C_6H_7O_2$ ); n is 1-5; R and  $R^1$  are (m)ethoxy, (hydroxy)propoxy or OH.  
Pancreatin, lipase, chymotrypsin, trypsin, propeptidase, biferase, bromelin, etc. can be made into an enzyme drug. Fo(I), of which the substitution degree of anhydrous glucose unit with carboxyalkyl gp. is 0.3-1, can be favourably used.

The bonds between glucose unit and carboxyalkyl gp. (I) are wholly ether bonds and not ester bonds, thus it can be directly contacted with an esterase stably and the enzyme drug can be prepd. without a coating process. 2.4.79 as 043615. (4pp5)

**KACH- D16 77245 A/43 = J8 0043-451**  
Lowering toxicity of mycoplasma shinobie - by treating mycoplasma with nitroso-guanidine and selecting the clone temp.-sensitive mutation which does not grow on mycoplasma medium  
KACHIKU EISEI SHIKE 01.03.77-JA-021894  
B04 C03 (06.11.80) \*J53107-412 A61k-39/02 +C12n-01/20 C12r-01/35

The toxicity of mycoplasma shinobie is lowered by treatment with nitrosoguanidine at a concn. of 100-200  $\mu$ g for 30 mins. at 37°C and then selecting the clone which shows the temp. -sensitive mutation and does not grow on the mycoplasma medium at 40°C.

Mycoplasma shinobie is a pathogenic microorganism causing respiratory disease in poultry. 1.3.77 as 021894, A61k-39/02, C12n-1/20, C12r-1/35 (6.11.80) KACHIKU EISEI SHIKE (5pp) (J53107412)

**PERF- ★ D16 87582 C/49 ★ J8 0043-723**  
Tissue culture of potatoes without viral infections - on medium contg. agar, sugar, polysaccharide and inorganic salt followed by culture on medium optionally contg. growth hormone  
PERFECT LIBERTY KYO 24.08.72-JA-084918  
C03 P13 (07.11.80) A01g-01

Sliced virus free potato is cultured on a medium contg. agar, sugar, polysaccharide, and inorganic salt, is further followed by culturing on a medium contg. the above components and plant growth hormone. 24.8.72 as 084918, A01g-1/00 (7.11.80) PERFECT LIBERTY KYODAN (20pp22) (J49036885)

**CHUS ★ D16 87589 C/49 ★ J8 0043-754**  
Haemolytic streptococci drug prepn. - by suspending cell body of haemolytic streptococci into medium contg. penicillin, heating and contacting with hydrogen peroxide  
CHUGAI PHARMACEUTICAL KK 14.09.72-JA-091806  
B04 (07.11.80) C12n-01/20

Cell body of haemolytic streptococci is suspended into a medium contg. penicillin and kept at 30-38°C, and then the resultant is heated at 40-50°C, and contacted with  $H_2O_2$ .

An Anticancer drug contg. small amt. of living cell is obtd. 14.9.72 as 091806 C12n-1/20 (7.11.80) CHUGAI PHARMACEUTICAL KK (4pp22) (J49048822)

**HOUS- ★ D16 87590 C/49 ★ J8 0043-755**  
Prepn. of powdered milk contg. live lactobacilli - by culturing lactobacilli on animal milk medium, neutralising, adding powdered milk etc.  
HOUSE SHOKUHIN KOGY 19.01.73-JA-008429  
(07.11.80) C12n-01/20

Lactobacilli is cultured on a medium contg. animal milk, then the resulting fermented milk is adjusted to neutral pH and powdered milk is added, followed by drying under vacuo. 19.1.73 as 008429, C12n-1/20 (7.11.80) HOUSE SHOKUHIN KOGYO KK (5pp22) (J49094866)

**KIKK ★ D16 87591 C/49 ★ J8 0043-757**  
Prepn. of enzyme for dissolving bacteria cell wall - by aerobically culturing microorganism Pseudomonas aeruginosa in medium contg. ethanol as carbon source  
KIKKOMAN SHOYU KK 28.12.70-JA-120394  
B04 (07.11.80) C12n-09/14

Microorganism of Pseudomonas aeruginosa FERM No.788 which can produce enzyme for dissolving cell wall of bacteria, is cultivated on a culture medium contg. ethanol as the sole carbon source, whereby there is produced enzyme for dissolving cell wall of bacteria in the culture medium, and then the enzyme is recovered. The novel microorganism is sepd. from soil and named Pseudomonas aeruginosa L-1028.

Amt. of ethanol to be added to the culture medium is 1-5 w/v %. The culture medium contains nitrogen source such as urea, ammonium salt, nitrate, etc. inorganic salt such as potassium phosphate, magnesium sulphate, iron ion cobalt ion, etc. and other additives, The cultivation is conducted at 30-37°C, at pH of 7-8 for 36-96 hrs. under aerobic conditions. 28.12.70 as 120394, C12n-9/14



(7.11.80) KIKKOMAN SHOYU KK (5pp22)

UKSO- D16 33793 T/21 = J8 0043-758  
 L-asparaginase prodn - by culture of erwiniaspp  
 UK SEC SOCIAL SERV (SEC ) 13.11.70-GB-054277  
 B04 (07.11.80) \*BE-775-286 C12n-09/82 + C12r-01/18  
 L-Asparaginase is prepd. by culturing bacteria of the genus *Erwinia*, by continuous culture, in the presence of a determined C source, which is maintained in a limited stationary concn. and is an intermediate in the Krebs cycle or a precursor of such an intermediate. 12.11.71 as 090018 (clg.13.11.70-US-054277) C12n-9/82, C12r-1/18 (7.11.80) UK SECRETARY OF STATE FOR SOCIAL SERVICES (5pp) (J47014384)

MITC D16 49286 V/27 = J8 0043-759  
 Dicarboxylic acid prodn. - by culturing *Torulopsis* MT-99 in hydrocarbon medium  
 MITSUI PETROCHEM IND KK 28.07.72-JA-064061  
 A41 E17 H04 (07.11.80) \*J49025-186 + C12p-07/46 C12r-01/88  
 Dicarboxylic acid (I) is produced by a new isolated *Torulopsis* MT-99 (II, FERM-P 1362), by culturing in a hydrocarbon medium and contacting the remaining cells with a hydrocarbon soln. without N source, (I) with the same no. of C atoms or even no. less than the starting hydrocarbon is obtained. In an example, (II) was cultured with shaking at 28°C for 5 days in a medium (pH 7.5) contg. (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> 4, K<sub>2</sub>HPO<sub>4</sub> 2, KH<sub>2</sub>PO<sub>4</sub> 1, MgSO<sub>4</sub>·7H<sub>2</sub>O 9.5, and yeast 1 g/in 1 l H<sub>2</sub>O with added n-decane at 3.5 ml/63 ml and adjusting the pH at 7.5 with alk. soln. Cryst. was obtd. by concn. of the filtrate at acid pH. Sebacic acid was extd. 3 times from the cryst. with Et<sub>2</sub>O, 0.57g cryst. was obtained from 500 ml culture broth. The washed remaining cells were suspended in 0.5M phosphate buffer contg. n-decane at 2 ml/70 ml and shaken at 28°C for 91 hr. 0.55g cryst. was obtained from 500 ml reaction soln. 28.6.72 as 064061, C12p-7/46, C12r-1/88 (7.11.80) MITSUI PETROCHEMICAL IND. (5pp) (J49025186)

AJIN D16 36337 W/22 = J8 0043-760  
 Amino acids cultivation using carbon dioxide as carbon source - from bacteria belonging to *Brevibacterium*, *Mycobacterium* or *anthrobacter* species  
 AJINOMOTO KK 16.08.73-JA-091953  
 B05 E19 (07.11.80) \*FR2240-951 C12p-07/40 C12p-13/08 C12p-17/18 C12p-19/42 C12p-25 C12r-01/13  
 Amino acids are prepd. by culturing a gram-positive bacteria in an aq. medium contg. a nitrogen source and an inorganic salt, in the presence of oxygen, hydrogen and carbon dioxide and the amino acid prods. are recovered from the broth. The amino acids produced are lysine, histidine, arginine, aspartic acid, threonine, serine, glutamic acid, proline, glycine, alanine, cysteine, valine, isoleucine, leucine, tyrosine, phenylalanine and methionine. New bacteria comprise *Brevibacterium* sp. AJ358 (FERM P2234), *Mycobacterium* sp. AJ3589 (FERM P2235) and *Arthrobacter* sp. AJ3786 (FERM P2638). 16.8.73 as 091953 C12p-13/08, 7/40, 17/18, 19/42, 25/00, C12r-1/13 (7.11.80) AJINOMOTO KK (6pp) (J50042095)

BISE- D16 84988 B/47 = J8 0044-046  
 Live vaccine for avian infections laryngotracheitis - contain the virus which forms pock on chorioallantoic membrane of eggs and no pock on membrane of allantoic cavity  
 BISEIBUTSU KAGAKU 04.04.78-JA-039851  
 B04 C03 (10.11.80) \*J54132-226 A61k-39/21 + C12n-07/08  
 Live vaccine for avian infectious laryngotracheitis (ILT). contains avian infectious laryngotracheitis virus as effective ingredient when inoculated on the chorioallantoic membrane of eggs of 9-11 days of age, the virus forms a pock (localised lesion) of 2 mm dia. on the membrane, and when inoculated in the allantoic cavity, it does not form the pock on the corioallantoic membrane.

The virus can be distinguished clearly from the wild type of ILT virus which forms a pock on the chorioallantoic membrane when inoculated on the allantoic cavity, thus, the effectiveness or ineffectiveness of the vaccine to the disease can be determined. The vaccine can be applied as

aerosol to the eyes or nose because it is less toxic than that in the prior art. 4.4.78 as 039851, A61k-39/215, C12n 7/08 (10.11.80) BISEIBUTSU KAGAKU (3pp52)(J54132226)

WOLF/★ D16 87604 C/49 ★ J8 0044-047  
 Prepn. of vaccine for Marek's disease in fowl - by incubating Herpes virus FC 126-S strain  
 WOLFGANG P R 10.04.71-JA-022117  
 B04 C03 (10.11.80) A61k-39/25

Herpes virus FC126-S strain is incubated in a cell produced by cultivation of fibroblast of fowl fetal, and then the resulting cell containing the virus is made into living vaccine by conventional manner. 10.4.71 as 022117, A61k-39/255 (10.11.80) WOLFGANG P.R. (6pp22) (J47030828)

TAKE D16 23136 S/13 = NL-165-450  
 Citric acid extraction procedure  
 TAKEDA CHEMICAL IND KK 25.09.69-JA-076400  
 E17 (17.11.80) \*BE-756-656 C07c-59/26 + C07c-51/48 C12p-07/48

Citric acid and (+)-isocitric acid are sepd. by adding 0.4 to not more than 0.8 eq. Ca, calc to citric acid, to a soln. contg. citric acid- and (+)-isocitric acid salts with a pH of >6. Calciumcitrate ppts. selectively and is separated. The process may be used esp. for culture filtrates using yeasts of the *Candida*-type to produce citric acid.

The new process is effective, simple and fast. 24.9.70 as 014109 (6pp279)

RHON D16 12782 Y/08 = NL-165-472  
 Stable latex of styrene polymer with terminal thio-aniline gps. - for fixing and purifying proteins, and as diagnostic agent  
 RHONE-POULENC INDUSTRIES 22.08.75-FR-026056  
 A13 B04 (A96) (17.11.80) \*BE-845-402 C08f-02/24 C08f-04/04 C08f-12/06

Homopolymers of styrene or -derivs. or copolymers of styrene or styrene derivs. with vinyl- or diene monomers, which have gps. in end position of form (II): in stable latex



form (I) are prepd. by polymerising styrene or -deriv. opt. mixed with copolymerisable vinyl- or diene monomers in aq. emulsion, in the presence of 0.1-10 wt.% of an aminophenyldisulphide or aminophenylmercaptan as chain transmitter, as well as an emulsifying agent and a water-soluble diazo initiator. The process is controlled in known ways to form particles, of ave. dia. of 0.05-3 micron. Where necessary, the quantity of comonomer is restricted so that the prod. has a glass-transition temp. of >20°C.

The pref. diazo-initiating agent is 0.01-3 wt.% of a sulphonated- or carboxylated azonitrile or an azobis-alkylamidinium salt.

Latices (I) may be used to fix proteins into the polymer by covalent chemical bonds. The complexes formed are used for the purificn. of other proteins or as diagnostic agents.

(I) are stable dispersions, mechanically as well as upon storage. The polymerisation process is simple, a solvent to introduce the chain transmitter is not necessary there is no sec. mass-polymerisation and yields are high. 20.8.76 as 009295 (5pp279)

CHUS D16 68624 R/38 = NL-165-49  
 Enzyme with cell membrane dissolving - activity from micropolysor cultures

CHUGAI SEIYAKU KK (CHUG) 12.03.69-JA-018312  
 B04 (17.11.80) \*DT2011-811 + C12n-09/14 C12r-01/\*

Micro-organism of the genus *Micropolyspora* is cultured in a nutrient medium to form enzymes with lytic activity on the cell wall of bacteria, fungi and *Chlorella*-species. The enzymes are then isolated from the medium. The pref. strain used for culturing is *Micropolyspora* strain ATCC 21489.

The enzyme prepn. obtd. may be used to extract many suitable intracellular substances from micro-organisms such as proteins, nucleic acid, amino acids, vitamins and other enzymes. 11.3.70 as 003427 (6pp279)



**MITC** D16 39925 V/22 =NL-165-499  
Citric acid by aerobic fermentation - of hydrocarbons, saccharides, aliphatic alcohols by yeasts of genus *saccharomycopsis*  
MITSUI PETROCHEM IND KK 13.03.73-JA-028561 (17.11.72-JA-114765)  
E17 (17.11.80) \*BE-807-369 +C12p-07/48  
Citric acid (I) is prepd. by fermentation of the yeast *Saccharomycopsis lipolytica* MT 1002 under aerobic conditions by assimilation by hydrocarbons, alcohols and/or saccharides. (I) is then isolated from the medium.  
The new process gives (I) on technical scale in very high yield. Hydrocarbons used may be opt. satd. aliphatic, aromatic- or alicyclic. Normal paraffins are preferred. Saccharides may be mono- or poly saccharides. Alcohols are aliphatic mono- or poly-valent. Media also contain inorganic- or organic N-sources and may contain vitamins, peptides, amino acids, growth factors etc. 16.11.73 as 015763(4pp279)

**ZAID** D16 64041 T/40 =NL-165-501  
Pepstatins as anti ulcer agents - from streptomyces strains  
ZH BISEIBUTSU KAGAKU KEN 26.03.71-JA-017292  
B04 (17.11.80) \*BE-781-253 A61k-37/64 C07c-103/52 C12p-21/02

Mixt. of pepstatins is prepd. consisting for a smaller part of known pepstatine A and for the larger part of new pepstatine B and -C, by culturing a *Streptomyces* strain in a nutrient medium which does not contain peptone as N-source, but mainly caseine, skimmed milk and/or soya-flour.

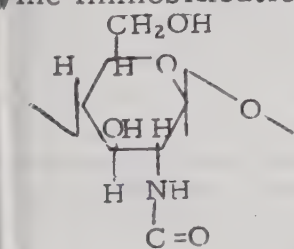
The mixt. of pepstatins B and -C is isolated in the form of the free acids, as alkyl esters derived from a (1-5C)alcohol, or as alkalimetal salts, by extracting the medium with (>5C)alkanol, followed by concn., esterification with (1-5C)alkanol and sepg. the alkyl esters of B and C from the alkyl ester of A. The esters are then opt. reacted to form the free acids or the alkali metal salts.

Prof. the isolated mixt. of pepstatins B and C is made into a form suitable for medicinal use. The new mixts. have inhibitory action on the activity of pepsin, which is of the same order as that of known pepstatine A. 27.3.72 as 004068 (10pp279)

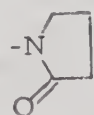
**PLIV** ★ D16 C/49 ★OE 7801-804  
Mfg. peptidoglykan with repeating di:saccharide penta:peptide units - using peptido:glykan complex pptd. in microorganism culture  
PLIVA PHARM & CHEM FAB 22.03.77-YU-000761  
B04 (15.11.80) C12p-21 14.3.74 as 001804

**SEL** = ★ D16 87960 C/49 ★SU-729-197  
Crosslinked chitosan copolymer carrier for enzyme immobilisation - prepd. from chitosan acylated with maleic anhydride and vinyl monomer copolymerisation  
AS USSR ELEMENT ORG 05.07.77-SU-502642  
A11 B04 (A96) (28.04.80) C08b-37/08

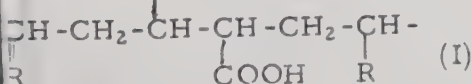
Crosslinked chitosan copolymer have gps: X-O-X (where X is gp. of formula (I), and are used as carriers for enzyme immobilisation (e.g. for foodstuff and pharmaceutical



R is -CONH<sub>2</sub> or gp. (II):



(II)



(I)

use.

It is by free radical copolymerisation of chitosan acylated with maleic anhydride and vinyl monomer. Acylating in formamide at 20-60°C gives degree of acylation 5-100%.

Copolymerisation is carried out in aq. or organic solvent (or mixt.) pref. in inert atmos. using wt. ratio vinyl monomer-acylated chitosan 1:10-100:1, soln. concn. 3-20 wt. %, and initiation at 20-100°C to give

swollen transparent gel, which may be pulverised and dried.

Berkovich, L.A., Tsyurupa, M.P., Davankov, V.A. et al. Bul. 15/25.4.80. 5.7.77. as 502642 (4pp114)

**BELY** / ★ D16 87997 C/49 ★SU-729-238  
Microorganisms culture unit - has aerator fitted in cavity of diffuser below heat exchanger

BELYAEV V D 15.06.76-SU-376133  
(25.04.80) C12b-01/10

Satn. of culture fluid in a tank for microorganisms growing is ensured by a gas feeder followed by exhaust of spent gases in a turbulent stream. This intensifies the culture process using the aerator in the cavity of the diffuser above the heat-exchanger. The working fluid fills up the tank to the marked level, the fluid for yeast growing being water. After loading the nutrients, inoculation takes place; and when the concn. reaches the given level the compressor drive is switched on.

Mixing of gas with fluid in the swirled stream increases the intensity of gas dissolution in the fluid with following turbulence induced by entry into the funnel. The latter eliminates swirl, promoting further dissolution of gas in culture fluid.

Belyaev, V.D., Kazanchan, P.P., Moskvina, V.D. et al. Bul. 15/25.4.80. 15.6.76. as 376133 (5pp89)

**PROT** = ★ D16 87998 C/49 ★SU-729-239  
Microorganisms e.g. yeast culture unit - has pulsating aerated nutrient stream with flow inducer connected to microbial cell growth tank.

PROTEIN BIOSYNTH (UHEA=) 30.12.76-SU-436726  
(25.04.80) C12b-01/10

The degree of air dispersion in the nutrient fluid of culturing unit is increased by pulsating the gas-fluid flow. This enhances the interphase contact surface by connecting the inlet tube of the flow inducer with the tank for microorganisms growing. The resulting linkage forms a closed fluid circulation loop with the disperser and tank connected to the cyclone.

The setting provides the sepn. of the coarsely dispersed gas phase from the entering gas-fluid stream. The pipe taking the gas phase is connected to the feed pipe of flow inducer.

Boiko, V.I., Borovskii, V.R., Grigoryan, A.N. et al. Bul. 15/25.4.80. 30.12.76. as 436726 (5pp89)

**BEKI** ★ D16 87999 C/49 ★SU-729-240  
Microbiological culture growth unit - using aerating turbulent gas flow tangent slots in cups and in covering deflectors

BELORUSS KIROV TECHN INS 03.05.77-SU-483907  
(25.04.80) C12b-01/10

The efficiency of microorganisms growing is enhanced by increasing the volume of the working chamber and intensifying the mass exchange between air and the culture fluid.

Each cup is superimposed by a deflector forming a clearance in the partition set above it. Both the cup and deflector have tangent slots for swirling the gas flow.

The cylindrical cups are fitted with curved tubes for admitting the culture fluid when set at the level of the upper layer. This improves stirring of the culture fluid with air entraining it into the swirling flow.

Vaitekhovich, P.E., Bortnikov, I.I., Prudnikov, F.V. Bul. 15/25.4.80. 3.5.77. as 483907 (4pp89)

**BEKI** ★ D16 88000 C/49 ★SU-729-241  
Microbiological fodder yeast prodn. unit - has two culture vessels and absorption-type cooler forming closed loop for heat carrier and water

BELORUSS KIROV TECHN INS (BBEL=) 29.08.77-SU-523090  
(D13) (25.04.80) C12b-01/10

The degree of utilisation of biological heat is enhanced in the unit for growing fodder yeast with an additional yeast growing section, which is of similar design to the main growing section and forms a closed loop for heat carrier-water in combination with the absorption type refrigerator. The latter, the heat exchanger for warming up the bio-



mass before the plasmolysis and the plasmolysis unit are connected to the pipe exhausting the secondary steam from the evaporator.

The pure culture of yeast, sterilised nutrient and aeration air are fed to the two yeast growing units where optimum growth is achieved at 34°C. This is accompanied by evolution of heat, and the grown biomass is transferred to the heat exchanger for preheating before the plasmolysis. The yeast suspension is admitted for plasmolysis at 90°C where it is held at that temp. during 1h. for killing the yeast cells. The heat for sterilising the medium, preheating the yeast suspension and for plasmolysis is derived from the secondary steam of the evaporator, which receives the yeast suspension after the plasmolysis. Khramtsov, P.G., Korotkevich, V.A., Bortnikov, I.I. et al. Bul. 15/25.4.80. 29.8.77. as 523090 (4pp89)

PROT= ★ D16 88001 C/49 ★SU-729-242  
Microorganisms e.g. growing culture unit - has lower section heat exchanger beneath air feeder and outside exchanger in circulation loop

PROTEIN BIOSYNTH 21.10.77-SU-535433  
(25.04.80) C12b-01/10

The reliability and efficiency of the unit for growing micro-organisms are enhanced by improving the stirring of culture fluid and the conditions of heat exchange.

The lower section of the tank has a heat exchanger below the air feeder while the tank has a circulation pipe for the culture fluid with a heat exchanger outside the tank. The perforated partitions in the tank have a open area forming 0.05-0.50 of the cross section of tank, and the diameter of holes increases upwardly. The ratio of diameters of lower and upper partitions is 1:2-1:10.

Vinarov, A.Yu., Shkop, Ya.Ya., Tikhonov, I.D. et al. Bul. 15/25.4.80. 21.10.77. as 535433 (5pp89)

VOTE= ★ D16 88002 C/49 ★SU-729-243  
Malting box unloading unit - has reciprocating carriage holding winch drum with malt suction pick/up unit

VORON TECHNOL INST 04.01.77-SU-441015  
(25.04.80) C12c-01/08

The reliability and efficiency of unloading unit in the malt growing box are enhanced using a guide shaft carrying the winch drum and a leadscrew pair. These are fitted in the carriage of the agitator and are linked to the malt scoop by articulated levers. The scoop is in the form of a cylindrical housing holding a rotor with hub on the drive shaft carrying curved blades mounted in a shell.

The unloading is initiated by release of the drum for lowering the housing of the malt scoop and by turning on the drive reciprocating the carriage. The malt is sucked up by the scoop for pneumatic transport and the leadscrew with levers imparts the scoop displacement in the box.

Gavrilenkov, A.M., Popov, V.A., Romanov, V.M. Bul. 15/25.4.80. 4.1.77. as 441015 (4pp89)

MICR= ★ D16 88003 C/49 ★SU-729-244  
Actinomyces aureovercillus 875 - is producer of farm animals and poultry biological activity stimulating agent

MICROBIOL PLANT PRO 21.09.78-SU-670273  
B04 (25.04.80) C12d-09/14

Strain Actinomyces Aureovercillus 875 intensively produces vitamycin, which is used as a biological activity stimulating agent for farm animals and poultry.

This strain was obtd. by stepwise selection from a natural strain, comprising u.v. irradiation of the spore suspensions.

The strain forms oval spores on spiral spore carriers. The cultivation is carried out in agarised oat, potato, soya or maize extracts, etc. The strain assimilates glucose, galactose, maltose, mannitol and rhaminose. The nitrogen sources are nitrates and ammonium salts. This strain suppresses the growth of gram-positive bacteria and some fungi; gram-negative bacteria are not attacked. Orlova, L.V., Makukhina, A.M., Martyakova, A.V. et al. Bul. 15/75.4.80. 21.9.78. as 670273 (4pp70)

CRIM= ★ D16 88004 C/49 ★SU-729-245  
Wine or fruit juice blender control unit - has negative feedback driving comparator and connected to electrode cells

CRIMEA WINE MFG IND 01.04.77-SU-472102

T06 (25.04.80) C12g-01/02

Improved blending of wines and juices is ensured by reducing the effect of variations in the compsn. and in temp. on the control accuracy in a process control system claimed in Parent Patent 545667.

The system comprises a negative feedback the input of which, is connected to electrode cells through the oscillator while the output feeds the comparator.

The components for blending including some solids are fed into tank and the electrode cells provide then different outputs although they are fed by similar signals from the oscillator. This is due to the different electric conductivities of products while the feedback maintains a constant level of the input at the top of the comparator. The signal from the latter is proportional to the difference in resistances and is passed to the threshold sensor which controls the tank stirrer actuator.

Korobov, V.M. Bul. 15/25.4.80. 1.4.77. as 472102 Add to 545667 (3pp89)

MICR= ★ D16 88005 C/49 ★SU-729-246  
Microbial strain Beanveria bassiana bals VNILL 124-P - entomopathogenic microbial agents for agricultural plant protection

MICROBIOL PLANT PRO 21.09.78-SU-667870

C03 (25.04.80) C12k-01/06

Strain Beanveria bassiana (Bals) VNILL. 124-P is used for the prodn. of the entomopathogenic prepn. Boverin (RTM).

The strain 124-P can be cultivated on much cheaper nutrients than the 113H-278 strain (which needs peptone and saccharose). The strain 124-P utilises whey, maize extract, yeasts, casein, etc.

Konanova, E.V., Aleshina, O.A., Ilicheva, S.N. et al. Bul. 15/25.4.80. 21.9.78. as 667870 (3pp70)

BREA= ★ D16 88006 C/49 ★SU-729-247  
Thermophilic strain Lactobacillus delbrueckii-76 - used for souring saccharified leaven for steamed bread prodn.

BREAD-BAKING IND (LEBR=) 04.07.77-SU-503293

(D11) (25.04.80) C12k-03

Thermophilic strain Lactobacillus delbrueckii-76 is used for souring saccharified leaven for the prodn. of steamed bread. This strain was selected from more than 100 strains of Lactobacillus delbrueckii, taken from the intermediate product of steamed bread prodn. Single rod-like cells (5-7 μ) do not form spores. The optimal growth temp. is 50°C.

Soured leaven (moisture content 68%) prepared from rye flour is mixed with a saccharified leaven in a ratio of 1:4. The souring of the mixt. is carried out at 50-52°C to 12-13°H acidity (pH 3.2-3.3) for 8-9h. In the soured leaven, the above strain produces 6-7% of volatile acids and 4.5 mg/l. of diacetone. Apart from lactic acid, malic, citric and glycolic acids are produced.

Afanaseva, O.V., Kazanskaya, L.N., Vasileva, A.I. et al. Bul. 15/25.4.80. 4.7.77. as 503293 (3pp70)

BREW= ★ D16 88062 C/49 ★SU-729-508  
Controlling hydrolysis of starch-contg. material by enzymes - involves determining activity of phosphatase with and without sodium molybdate or sodium tungstate acting as phosphatase inhibitor

BREWING PRODS RES 28.04.77-SU-477275

S03 (D17) (28.04.80) C12c-07/04 G01n-33/14

Hydrolysis of a starch-contg. material can be controlled by treatment with an enzyme complex comprising phosphatase, glucoamylase and maltase. The rate of the hydrolysis by different enzymes, in particular phosphatase, can be determined by carrying out two parallel tests, one with an inhibitor for phosphatase, and the second without such an inhibitor. By this method, the hydrolysis rate of phosphodextrin, yielding reducing carbohydrates and phosphores, can be determined and controlled. This method can be used in the alcohol-producing industry.



ortnova, N.G., Pisareva, M.S., and Rodzevich, V.I.  
ul. 15/25.4.70. 13.4.77. as 477215 (3pp70)

MCC D16 77480 C/44 =US 4234-316  
Device for delivering reagent(s) to a liq. assay medium - has solid, organic binder elements contg. reagent secured to a water impervious support

FMC CORP 02.04.79-US-025997

B04 J04 S03 (18.11.80) \*EP-17-414 G01n-33/50

pts. for precise addition of reagents to aq. assay medium includes a water-impervious chemically inert solid support with, on one or more faces, two or more discrete separate elements consisting of solid organic binder soluble or dispersible in water and holding a dispersed amt. of reagent.

The support is stiff and elongate with a handle at one end and the elements at the other so that the binder and reagent mix completely with the medium. The support is ref. a sheet with the elements on opposite sides, and may be used to stir the medium to assist dissolution. The elements may dissolve at different rates. 2.4.79 as 025997 (3pp1358)

ATLS D16 35305 F/00 #US 4234-516  
Isohumulone by isomerisation of humulone

ATLANTIC RESEARCH CORP 02.05.67-DT-A55619 (30.04.68-US-725458)

B04 (18.11.80) \*BE-714-485 +C07c-45

Prepn. of isohumulone prods. comprises (1) providing a mixt. of (a) salt productive in an aq. medium of an inert anion and a cation of gp. IIa, IIb, Fe gp., Ce or Mn element, (b) humulone (contg. material), and (c) inert liq. medium in which (a) dissociates, and (2) isomerising at elevated temp. at pH < 9 and greater than the pH at which humulone forms humulate anion in soln. The salt is present in amt. sufficient to accelerate the isomerisation.

Isohumulone is produced rapidly and gently in pure form and in high yield. 2.6.75 as 582774 C.i.p. 3952061 (3.5.73-US-356785) (7pp977)

MERI D16 76264 A/43 =US 4234-564  
Hepatitis B nucleus antigen prepn. - by treating Dane particles with anionic surfactant and a mercaptan reducing agent

MERCK & CO INC 20.04.77-US-789033 (19.12.77-US-861809)

A96 B04 J04 (S03 S05) (18.11.80) \*BE-866-096 A61k-39/29 G01n-33/54 +C12n-07

Compsn. for use in diagnostic assay or in the prepn. of a therapeutic compsn. comprises hepatitis B core antigen, HBcAg (I) in a carrier. The carrier comprises bovine serum albumin contg. Tris, MgCl<sub>2</sub> and NaCl in proportions suitable for storing the compsn. in a liq. N<sub>2</sub> freezer, and has pH 7.6.

(I) is obtd. from plasma of donors positive to HBsAg (II), the outer part of a Dane particle. The Dane particles are isolated by isopycnic banding, then treated to remove (II) and leave (I). Suitably the Dane particle is contacted with nonionic surfactant having 15-35 (18-33) oxyethylene units per molecule in the presence of a mercaptan reducing agent, e.g. mercaptoethanol, dithiothreitol, dithioerythritol or dithiooctanoic acid, to remove (II). 19.12.77 as 861809 Div.ex 4102996 (4pp945)

KAKY D16 89669 A/50 =US 4234-570  
Insulin secretion stimulating protein(s) for diabetes treatment - prepd. by dissociating protein obtd. by culturing Bordetella

KAKENYAKU KAKO KK 10.06.77-JA-069154

B04 (18.11.80) \*BE-868-022 A61k-37 C12p-21 +C07c-103/52

Protein fractions (A) KS-I, KS-II and KS-III prepd. by culturing a pathogenic strain of Bordetella pertussis are new. Also claimed are protein fractions (B) KSA-I, KSA-II, KSA-III and KSA-IV obtd. by mixing gps. of KS fractions in a buffer soln. to dissociate them. The active factor from which (A) are sepd. has insulin secretion promoting action and is a glucose tolerance improving agent.

The 'individual' (A) fractions are dormant per se in insulin secretory activity, but become strongly active in promoting insulin secretion and in suppressing various effects (leukocytosistic activity, histamine sensitivity

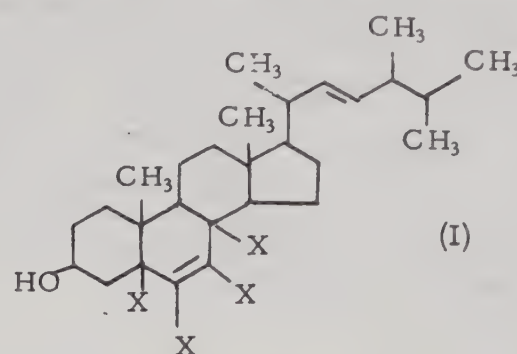
increasing activity and antigenicity), and toxicity when they are combined together in certain gps. The (B) fractions show similar activity. 1.6.78 as 911665 (23pp945)

ZLPA- D16 72780 C/41 =US 4234-577  
Fermentative prodn. of ergostadiene-triol cpds. - used as antioxidants and hypocholesterolaemic agents

Z-L LTD 19.03.79-US-022202 (08.06.77-US-804594)

B01 (18.11.80) \*NL7906-287 A01n-45 A61k-31/56

Compsns. contg. an ergostadienetriol of formula (I) are new, where each X is H or OH, provided <sup>2</sup>X are OH.



Cpds. (I) are antioxidants used to stabilise a wide variety of food prods. including edible fats and oils. They may be used together with isoflavone cpds. They are also used in pharma-

ceutical compsns. to reduce serum cholesterol levels, e.g. for treatment of atherosclerosis, and are effective at 0.01-10 mg/kg body wt.

The cpds. are prepd. by culture of Rhizopus oligosporus or R. oryzae. The cpd. where the two X gps. attached to the double bonded C atoms are OH and the others are H is claimed per se. 19.3.79 as 022202 C.i.p. 4157984(7pp)

CLBC ★ D16 88319 C/49 ★US 4234-680  
Peroxidase catalysed test reactions used in enzyme immunoassay - are terminated, to prevent atmospheric oxidn, by adding an alkali metal bi-sulphite

CALBIOCHEM BEHRING 03.08.79-US-063178

B04 J04 (18.11.80) C12n-09/99 C12q-01/66

Peroxidase catalysed colourimetric reactions used in peroxidase labelled enzyme immunoassay can be terminated by adding an alkali metal metabisulphite (I).

Due to cheapness and ready availability, the most commonly used peroxidase is horseradish peroxidase. However, this substance not only catalyses the conversion of a non-coloured substrate to a coloured one in the presence of H<sub>2</sub>O<sub>2</sub>, but also to some extent in the presence of atmospheric oxygen. Once the reaction is complete any further colour change due to atmospheric oxygen can be prevented by adding a terminating substance. Such prior art substances are H<sub>2</sub>SO<sub>4</sub> or NaN<sub>3</sub>, but (I) of the present invention does not have the corrosive or explosive disadvantages of these two compounds. The assay is esp. for the determ. of human IgE. 3.8.79 as 063178 (4pp916)

REGC ★ D16 88320 C/49 ★US 4234-681  
Biochemical analytical prods. in rod shape - with oxidoreductase and luciferase enzymes immobilised on them

UNIV OF CALIFORNIA 21.07.78-US-926642 (14.12.76-US-750436)

B04 J04 (18.11.80) C12n-11/18 C12q-01/66

Analytical prod. comprises an elongated rod having attached to it porous glass beads, with an oxidoreductase enzyme (II) both immobilised on the beads. Further, analytical prod. comprises an elongated glass rod having attached to it an agarose having N-hydroxysuccinimide ester arms on it, with (I) and (II) both immobilised on it.

The prods. concentrate and intensify electromagnetic radiation emitted during chemiluminescent reactions, so that visible light is emitted. The procedure is useful for the determ. of small amts. of material, e.g. enzymes, enzyme substrates, antigens, antibodies, etc. The rods can be used in liq. media without loss of components, and the media may be opaque and may be in a container having irregular walls. 21.7.78 as 926642 (3pp1248)



MCMI/★ D16 88321 C/49 ★US 4234-683  
Detection of beta-lactamase producing microorganisms - using support carrying beta-lactam, thiosulphate and starch  
MCMILLAN WA 24.11.78-US-963910  
B04 (18.11.80) C12q-01/34

Diagnostic prod. comprises a porous support having absorbed in it (a) a substrate (I), (b) a water-soluble thiosulphate and (c) starch. (I) is a cpd. contg. a  $\beta$ -lactam ring.

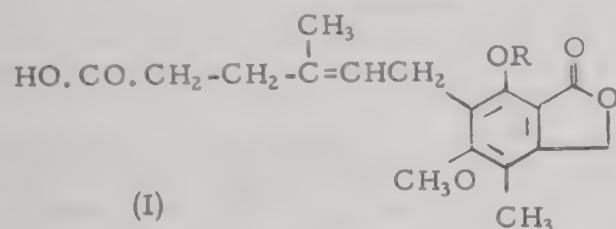
The prod. is useful for the detection of  $\beta$ -lactamase producing microorganisms, which are resistant to normal therapeutic penicillins etc. The results are obtd. quickly (10-30 secs.), and a number of specimens can be handled together with reproducible results. The prod. is esp. useful in determ. of resistant *N. gonorrhoeae* and *H. influenzae*  $\beta$  strains. 24.11.78 as 963910 (9pp1248)

ELIL★ D16 88322 C/49 ★US 4234-684  
Microbiological prepn. of mycophenolic acid glucoside - by contacting mixt. of mycophenolic acid and glucose with an enzyme from *Streptomyces candidus* or *aureofaciens*

ELI LILLY & CO 11.12.79-US-102504

B02 (18.11.80) C12p-19/60

Mycophenolic acid glucoside (I) is produced by contacting a mixt. of mycophenolic acid and glucose with a glucosylating enzyme derived from *Streptomyces candidus* NRRL 5449 or *Streptomyces aureofaciens* NRRL 2209.



(I)

In (I) R is  $\beta$ -D-glucopyranosyl.

Cpd. (I) is used for treating psoriasis, gout and transplanted

tumour cells in mice and rats. 11.12.79 as 102504(6pp916)

SCHE★ D16 88323 C/49 ★US 4234-685  
3-N-methyl and 3-N-methyl-4-C-methyl amino:glycoside antibiotics - prepd. by adding tobramycin, kanamycin or dibekacin to methionine contg. culture of *Micromonospora*  
SCHERING CORP 25.06.79-US-051790  
B03 (18.11.80) C12p-19/48

Tebamycin, Kanamycin A, Kanamycin B and dibekacin are converted to their 3''-N-methyl and 3''-N-methyl-4''-C-methyl analogues by contacting with a culture of *Micromonospora inyoensis* 1550F-1G or *Micromonospora purpurea* strain 1124 growing on an aq. medium contg. methionine under aerobic conditions.

Prods. are broad spectrum antibacterial agents. 25.6.79 as 051790 (7pp916)

LIFE★ D16 88324 C/49 ★US 4234-686  
High rate dextrose conversion from starch - using enzymes obtd. by culturing *Cladosporium resinae*

LIFELINE PRODUCTS 07.06.79-US-046482 (03.04.78-US-892747)

A97 (18.11.80) C12p-19/24

Dextrose is prepd. by solubilising starch to give a soln. with pH 1.5-8.5, contacting the prod. with a mixt. of starch-degrading enzymes prepd. by culturing *Cladosporium resinae* (Strain ATCC No. 20495) or an exo-pullulanase, a maltase, an  $\alpha$ -amylase or glucoamylase S produced by *Cladosporium resinae* (Strain ATCC No. 20495) at 30-70 °C, and recovering the obtd. dextrose.

The starch may be solubilised by acid and/or enzyme treatment. Glucose isomerase is opt. added to the enzymes, which are present in an amt. of 1-30, pref. about 5, International Units of activity per ml.

The starch is converted to dextrose at a higher rate and extent of conversion, compared with the conventional use of an *Aspergillus niger* enzyme. 7.6.79 as 046482 C.i.p. 4211842 (18pp558)

ICIL D16 21890 A/12 =US 4234-687  
Beta:galactosidase enzyme generation - by cultivating Microorganism species, used for lactose hydrolysis to galactose and glucose (BE 14.3.78)

IMPERIAL CHEM INDS LTD 14.09.76-GB-038002

E13 (D17) (18.11.80) \*DT2741-158 C12n-09/38 C12p-19/14

$\beta$ -Galactosidase enzyme or enzyme compns. contg.  $\beta$ -galactosidase are produced by culturing microorganism having identifying characteristics of the microorganism LT-2 (NCIB No. 11259) capable of producing  $\beta$ -galactosidase in nutrient medium.

Pref. the medium contains lactose or galactose as C source; ammonia, net rate or aminoacid as N source; and sources of P, Mg, K and S. Pref. the medium is at 30-60 and pH 4.5-8.0.

The prod. enzyme is not inhibited by Cu ions and is stable at 50°C. 9.9.77 as 831914 (4pp964)

BIOT- D16 71998 C/41 =US 4234-689  
Extracellular microbial lipo-hetero polysaccharide derivs. - prepd. from *Acinetobacter* sp., useful as emulsifiers for oils and hydrocarbon(s) etc. (J5 29.8.80)

BIOTECHNOLOGIE AG 22.02.79-US-012972

A11 H01 J01 Q24 Q49 (A97 H03) (18.11.80) \*EP--16-546 C12p-19/04

Prodn. of extracellular microbial lipopolysaccharides comprises (a) inoculating aq. fermentation medium contg. a growth-sustaining amt. of EtOH with a culture of *Arthrobacter* Sp. ATCC 31012 or its mutants, and (b) aerobically growing the microorganism while adding additional amts. of EtOH.

The prod.  $\alpha$ -emulsans, in which lipopolysaccharide components (apo- $\alpha$ -emulsans) are N- and O- lipoacylated heteropolysaccharides made up of major amts. of D-galactosamine and an aminouronic acid, containing  $\geq 5$  wt. % of fatty acid esters. The fatty acids contain 10-18 C atoms and  $\geq 50$  wt. % of the fatty acids are composed of 2-hydroxydodecanoic acid and 3-hydroxydodecanoic acid.

The prods. are efficient oil-in-water emulsifiers with high degree of specificity in both fresh water and sea water for emulsifying hydrocarbons contg. aliphatic, aromatic and cyclic components. 22.2.79 as 012972 (45pp977)

SCHE★ D16 88325 C/49 ★US 4234-690  
Prepn. of antibacterial rosaramicin - by aerobic cultivation of *Micromonospora Rosaria* NRRL 3718 in nutrient medium  
SCHERING CORP 16.07.79-US-058044 (22.01.70-US-004916)  
B02 (18.11.80) C12p-17/18

Rosaramicin (I) is produced by cultivation of *Micromonospora rosaria*, esp. NRRL 3718, in a nutrient medium under submerged aerobic conditions. Then (I) is isolated from the medium, e.g. by extrn. with an organic solvent at alkaline pH. The crude (I) obtd. from the solvent soln. can be purified by further extractions, chromatography etc.

(I) is a broad-spectrum antibacterial described in US 4161523 (Der 57935 B), together with its mono- and diesters and their salts. 16.7.79 as 058044 Div. ex4161523 (+15.11.72, 21.10.74-US-303883, 516338) (12pp1248)

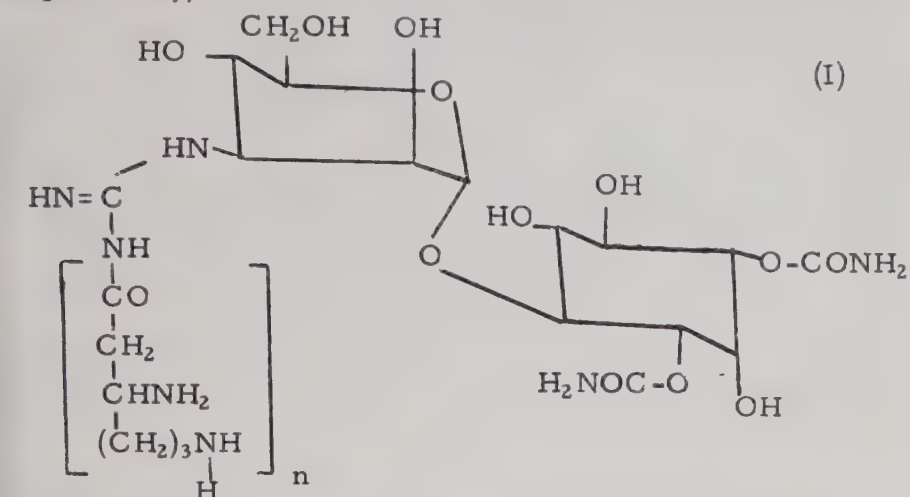
YAMS D16 64923 B/36 =US 4234-691  
L-Lysine-alpha-oxidase prodn. from *Trichoderma viride* - for L-lysine enzymatic determination e.g. in clinical diagnosis or food analysis  
YAMASA SHOYU KK 16.06.78-JA-073441 (27.02.78-JA-020993)  
B04 (D13) (18.11.80) \*DT2906-737 C12n-09/06

L-lysine  $\alpha$ -oxidase cultured pref. from a strain of genus *Trichoderma*, esp. *T. viride* Y244-2-90 with an ATCC No. 20536 and Ferm No. P4256, can form  $\alpha$ -keto- $\epsilon$ -aminocaproic acid, NH<sub>3</sub> and H<sub>2</sub>O<sub>2</sub> by oxidative deamination of L-lysine. The deamination is in the presence of water and O<sub>2</sub>.

The enzyme pref. has a mol. wt. represented by two subunits each of mol. wt. 56,000 ( $\pm 5,000$ ) when measured by electrophoresis using SDS-polyacrylamide gel, 112,000 ( $\pm 10,000$ ) by gel filtration and 119,000 by ultracentrifuge sedimentation equilibria. Pref. the oxidase is used with a coenzyme, FAD. The oxidase has a very low Km value and high substrate specificity wrt. L-lysine. 26.2.79 as 015179 (9pp965)



AMCY ★ D16 88333 C/49 ★ US 4234-717  
Antibiotics BM 782  $\alpha$  1, 2 and 1a - useful as broad spectrum  
antibacterials and antitubercular agents  
AMERICAN CYANAMID CO 02.03.79-US-017000 (30.03.78-US-  
891572)  
B03 (18.11.80) A61k-31/71 C07h-15/22  
Antibiotics BM 782  $\alpha$  1,  $\alpha$  2 and  $\alpha$  1a of formula (I) and  
their acid addn. salts are new, (where n is 4, 3 or 5  
respectively).



BM 782  $\alpha$  1, as sulphate, analyses for C 31.79; H 6.18;  
N 12.48; S 7.40%; it has  $[\alpha]_D^{20} 0^\circ$  (C 0.48 in  $H_2O$ ), and  
characteristic i.r., carbon-13 n.m.r. and p.m.r. spec-  
tra. BM 782  $\alpha$  2 and  $\alpha$  1a have similar characteristic  
spectra and have as sulphates respectively, on analysis  
C 31.31; H 6.16; N 12.05; and S 7.31; with  $[\alpha]_D^{20} 0^\circ$  (c,  
0.68 in  $H_2O$ ). And C 30.18; H 6.16; N 11.76; and S 8.61;  
with  $[\alpha]_D^{20} +4^\circ \pm 2^\circ$  (c, 0.653 in  $H_2O$ ).

(I) are broad-spectrum antibacterials and are effective  
against Mycobacterium tuberculosis. The 3 antibiotics  
are formed by cultivation in a nutrient medium of Nocardia  
spp NRRL 11239. 2.3.79 as 017000 (17pp1248)

See Also

D13 J8 0043756  
D17 GB 1580440  
D25 EP --19315

D15 SU 729143  
D17 US 4234688

D15 US 4234652  
D21 DS 2705670

## D17: SUGAR; STARCH

GIME/ ★ D17 C/49 ★ BR 8004-049  
Sugar cane diffuser for distillery  
GIMENES R 27.06.80-BR-004049  
(18.11.80) B01d-12 C13d-01

MASW D17 38457 C/22 = DS 2849-927  
Continuous sugar crystal centrifuge - with bowl surrounded by  
stationary trough of gradually increasing depth  
MASCH FAB BUCKAU R 17.11.78-DT-849927  
P41 (27.11.80) \*DT2849-927 B04b-07/04  
A continuous centrifuge with a device for mashing of sugar  
crystals has the centrifuge bowl surrounded by a collect-  
ing trough for the ejected sugar. The trough is an annulus  
between two cylindrical walls. The bottom of the trough  
starts at a high point and slopes down to a lower discharge  
point almost perpendicular below its start. The trough is  
closed by a vertical wall in the flow direction of the sugar  
mass which reaches up to the bottom plate above. The  
discharge opening extends radially from the lowest point of  
the trough.

The facilitates the discharge of the flowing sugar mass.  
17.11.78 as 849927(4pp39)

ISO ★ D17 86966 C/49 ★ GB 1580-440  
Sepn. of diabetin from aq. mixts. with dextran - by pptn. of dextran  
with solvent, then solvent and water removal with controlled PH  
FISONS LTD 14.08.76-GB-034075  
(D13 D16) (03.12.80) C08I-05/02 C13k-11  
Diabetin (I) is recovered from aq. mixts. of (I) and dext-  
ran (II) as follows: (a) a suitable solvent is added to the  
aq. (I)-(II) mixt. to ppte. (II); (b) solvent is removed from  
the sepd. aq. solvent soln. of (I); (c) the resulting aq. (I)  
soln. is adjusted to pH 4.5-6; and (d) some of the  $H_2O$  is  
evapd. to afford a (I) concentrate.

Simple, economical method affords a (I) concentrate  
which may be stored at relatively low temps. (e.g.  $0^\circ$  for  
months). (I) concentrates may be used in bakery and  
brewing etc., as thickeners, sugar crystallisation inhibi-  
tors, preservatives and humectants. 11.8.77 (5pp478)

KU ★ D17 87484 C/49 ★ J5 5137-008  
Sepn. of acid or base from soln. by diffusion dialysis - e.g. for sepg.  
acid-hydrolysate of starch from aminoacid soln., using ion-  
exchange membrane  
TOKUYAMA SODA KK 16.04.79-JA-045282  
A97 J01 (25.10.80) B01d-13

acid (I) or base is sepd. from a soln. contg. it and, neut-  
ral cpd. (II) or polymer electrolyte (III), using an ion-ex-

change membrane (IV) having a surface contg. the opposite  
ion-exchange radicals (V) to those of (IV).

(V) is held at the surface of (IV), by adsorption of (V)-  
contg. cpd. on the surface, physical intertwinement of (V)-  
contg. cpd. or (V)-contg. ion exchange resin with (IV), or  
chemical binding of (V)-contg. cpd. or (V)-contg. ion ex-  
change resin with (IV). The amt. of (V)-contg. cpd. or  
(V)-contg. ion exchange resin is not limited but usually >  
50% of them based on (IV) is used. (II) is sugar, polyeth-  
ylene oxide, polypropylene oxide, crown ether, PVA, ace-  
tone, etc. (III) is colloidal silica of a mol. wt. higher than  
1,000, quat. poly-4-vinyl pyridine, polypeptide, etc.

(IV) is being used for sepn. of (I) from acid-hydrolysate  
of starch, (I) from amino acid-produced soln., etc. In  
prior art, large amt. of sugars and aminoacids leaks  
through (IV). By use of (I), leakage of sugars or amino-  
acids can be remarkably reduced. 16.4.79 as 045282.  
(6pp42)

NIRT D17 25090 B/13 = J8 0043-415  
Rust resistant compsn. for use in concrete - comprises calcium  
nitrite, beet sugar, waste liq., benzotriazole and trialkanolamine  
NISSO MASTER BUILDERS 27.07.77-JA-089943  
E16 L02 M14 (E13 E33) (06.11.80) \*J54024-937 C04b-13/21

Compsn. contains (1) 100 pts.wt. calcium nitrite (2) 3-20  
pts.wt. (as solids) of beet sugar Stephen waste liq. (3) 0.5-  
5 pts.wt. benzotriazole and (4) 1-10 pts.wt. trialkanolamine  
Pref. (2) is the liq. by-produced in the Stephen process  
during the prodn. of beet sugar, (4) includes e.g. triethanol  
-amine, trimethanolamine, triisopropanolamine, (3) con-  
tributes to maintenance of the rust resistance of the compsn.  
for prolonged periods of time. The compsn. is used  
in amt. 0.5-2 kg/1  $m^2$  concrete.

Compsn. shows better rust resistance than calcium nit-  
rite alone. 27.7.77 as 089943, C04b-13/21 (6.11.80) NISSO  
MASTER BUILDERS (3pp136) (J54024937)

LAEV D17 55451 R/31 = NL-165-467  
Lactulose concentrates which are substant-ially colourless  
LAEVOSAN CHEM PHARM IND 07.02.69-OE-001256  
E13 (17.11.80) \*BE-745-517 +C07h-01 C07h-03/04

Lactulose concentrates (I) are prepd. by isomerisation of  
satd. 60-65% lactose soln. which is reacted at  $80-110^\circ C$   
with 0.05-0.5 mole alkali or alkaline earth metal sulphite/  
kg lactose monohydrate, until the optical rotation of the  
soln. remains constant. The larger part of non-reacted  
lactose is opt. removed by cooling and inoculation with-  
out previous concn. and the isomerisation agent and organ-  
ic acid formed are removed by ion-exchange. After de-



salting, the soln. is conc. and residual lactose is crystallised as much as possible. Pref. reaction takes place at the b. temp. of the soln., using pref. 0.1 mole.  $\text{Na}_2\text{SO}_3$ /kg lactose monohydrate.

(I) is used in suckling foods to promote the so-called bifidus-flora. The new process is simple and gives high yields of colourless prod. 6.2.70 as 001718 (4pp279)

**HAYB** D17 54028 R/30 =NL-165-500  
Powdered amylose  
HAYASHIBARA BIOCHEM CO 24.01.69-JA-005125  
(17.11.80) \*BE-744-836 C12p-19/16

Linear dextrans are prepd. by heating suspended starch of a glue-variety in water, cooling and reacting with an -1,6-glucosidase. The extrins are sepd. and dried, whereby the starch suspension contains 5-20% solids; the reaction mixt. after enzymatic reaction is warmed to min. 80°C and then cooled over min. 10 hours to below 35°C. The separated dextrans are spray-dried at below 45°C.

Pref. 1-butanol is first added to satn. after warming the reaction mixt. and the soln. is then cooled.

The new process is simple, gives linear dextrans of glue-variety starch in powder form and is easily water-soluble. 24.1.70 as 001026 (3pp279)

**DAVI-★** D17 88163 C/49 ★US 4234-349  
Appts. for purificn. of evaporated sugar solns. - including vortex forming tank, impeller, and clarifier  
DAVIES T H LTD 16.04.79-US-030169  
(18.11.80) B01d-21 C13d-03/16

An appts. for sepg. minute hydrophobic particles of non-sugars from an evaporated sugar soln. includes a tank with an air-admitting inlet and an outlet centrally located in the bottom of the tank. The outlet is connected to a vertical standpipe. The tank has a second inlet for the evaporated soln. The liq. forms a vortex into which air is drawn.

A semi-open impeller centrifugal pump comprises an impeller mounted on a drive shaft with blades opposed to an inlet. The central port on the impeller is flat so as not to interfere with the formation of a vortex, the blades being straight and radial. The blade tips are rotated at  $\geq 100$  ft./sec. The soln. enters the impeller to break up any particle agglomerates and break up the air into micron sized bubbles. The particles leave the soln. and cling to the bub-

bles. The air bubbles are sepd. from the soln.

The appts. is used to separate insoluble non-sugars from an evaporated sugar soln. It is used to treat solns. having a Purity Index of  $<93$ . 16.4.79 as 030169 (11pp295)

**DAVI-★** D17 88164 C/49 ★US 4234-350  
Purificn. of evaporated sugar soln. - by mixing with air to form bubbles with which non sugar particles aggregate  
DAVIES T H LTD 07.05.79-US-036834  
A97 (18.11.80) B01d-21 C13d-03/16

An in-line continuous process for the purificn. of an evaporated sugar soln. contg. non-sugar particles consists of introducing air into the soln. to form a mixt. This is transformed into a creamy liquor with the non-sugar particles aggregated to minute interspersed air bubbles. The particles and bubbles are sepd. from the remainder of the mixt. which is then recovered as prod. Pref. the air is introduced by forming a vortex in the soln. flow.

Chemical additions are not used prior to the introduction of air. The process is used for the sepn. of hydrophobic particles from the sugar soln. 7.5.79 as 036834 (10pp)

**TATL** D17 51675 A/29 =US 4234-688  
Polysaccharide(s) prepd. by culture of *Azotobacter vinelandii* - adding a proteolytic enzyme to prevent viscosity fall  
TATE & LYLE LTD 14.03.77-GB-010695  
(D16) (18.11.80) \*BE-864-823 C12p-19/04 C12r-01/06 + C13l-03

Polysaccharide is produced by culturing polysaccharide-producing strain of *Azotobacter vinelandii* in a culture broth contg. a nutrient medium for the strain. The improvement comprises regulating the soln. viscosity of the polysaccharide prod. by incorporating a protease having proteolytic activity at the pH of the culture broth.

Pref. the protease is incorporated at a level of 0.005-1.0 (0.005-0.5) Anson units. The culture is pref. performed as a continuous fermentation at pH 7.4, the protease being neutral or alkaline.

High viscosity polysaccharide soln. may be provided. 10.3.78 as 885272 (5pp964)

See Also

D16 SU 729508

D16 US 4234687

## D18: SKINS; HIDES; LEATHER; TOBACCO

**POUL=** D18 33270 U/23 #DS 2314-128  
Gelatin prodn - of high quality in high yield from collagen contg materials with reduced treatment time  
POULTRY PROC RES (POU-) 13.11.72-BE-791302 (21.03.73-DT-314128)  
G03 (27.11.80) \*BE-791-302 C09h-01

Gelatin is prepd from raw material contg. collagen, e.g. connective tissue and hides of cattle and pigs. The raw material is collected and dehaired and then disintegrated by treatment with alkali and salt soln. esp. sodalye satd with  $\text{Na}_2\text{SO}_4$ . After neutralisation esp. with orthophosphoric acid satd with  $\text{Na}_2\text{SO}_4$ , a final acid disintegration is carried out, esp. with orthophosphoric acid and the prod. frozen before extraction and further working up of the gelatin obtd. Before disintegration is started, the dehaired material is pref. washed with a soln. of a salt of a sulphur-contg. acid, e.g.  $\text{Na}_2\text{SO}_4$ . Edible and technical gelatin are obtd. in good yield. 21.3.73 as 314128 (6pp068)

**GLIE/★** D18 86437 C/49 ★DS 2923-461  
Furriers stretching plate - with central wooden plate lined with expanded latex retained by wire mesh  
GLIEMANN G 09.06.79-DT-923461  
A88 (27.11.80) C14b-01/26

A furrier plate, used to stretch furs nailed on it, consists of a solid base plate made, for example, of wood which is covered on both sides by a plastomer foam layer under a

narrow-mesh wire grating. A thicker layer of plastomer foam follows on both sides, retained again by a narrow-mesh wire grating. The preferred material for the wires of the gratings is stainless alloy steel, with a wire thickness of 0.8mm and a 2-2.5 mm mesh. The preferred material for the foam is cellular expanded latex.

Such a plate has a much longer life than wooden plates and is suitable both for the U-shaped tacks or manually inserted pins. 9.6.79 as 923461 (5pp39)

**SEIT★** D18 86838 C/49 ★EP-19-435  
Pickling hides before tanning in presence of urotropin - and tanning improver, esp. a chromium or aluminium salt  
SEITETSU KAGAKU KK 17.04.80-JA-051323 (11.05.79-JA-058488)  
E13 (E31 E33) (26.11.80) C14c-01/08 C14c-03/06

D/S: E(DT, FR, GB, NL)

Tanning process comprises pickling a hide, already subjected to beamhouse works, in presence of urotropin (I) and chromium and/or aluminium salts as tanning improver. The pickled hide is then pref. chrome tanned.

Esp. (I) is 0.2-10 wt.% on the hide and the Cr salt is 0.01-0.2 wt. pts. (on the hide) (as  $\text{Cr}_2\text{O}_3$ ) or the Al salt 0.1-2 wt. pts. (as  $\text{Al}_2\text{O}_3$ ). Specified salts are  $\text{Cr}(\text{OH})\text{SO}_4$ ,  $\text{Cr}_2(\text{SO}_4)_3$ ,  $\text{CrCl}_3$ ,  $\text{Al}_2(\text{SO}_4)_3$  and  $\text{AlCl}_3$ , and in the tanning stage a basic Cr salt is used at up to 1.5 wt. pts. (as  $\text{Cr}_2\text{O}_3$ ).



Alternatively the tanning improver is a phenol, organic N cpd. (esp. benzimidazole (sic)), organic N-halogen cpd. (esp. quat. ammonium salts), carboxylic acids, organotin cpds., Cu or As cpds., esp. at 0.001-1 wt.%. Pickling and tanning can take place in the same bath and the amt. of Cr salt needed is reduced, so less Cr is present in the effluent. The process is quicker since the improver allows pickling to be done at a higher temp., and the final leather prod. has improved resistance to deterioration, esp. when an organic improver is used.

5.80 as 301529 (41pp1251)  
C) ISR: \_\_\_\_\_

ATR ★ D18 87200 C/49 ★ J5 5135-582  
Composite fibrous material for cigarette filter - comprises short fibres coated with fibrillated cellulose ester deriv. material  
MITSUBISHI RAYON KK (MIST) 12.04.79-JA-044648  
A88 F09 J01 P15 (A11) (22.10.80) A24d-03/06

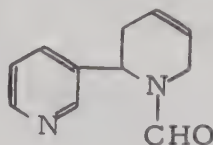
The fibrous material is composed of short fibre fibrous material which is coated with the fibrillated material consisting of the ester derivs. of cellulose (EDC) at least partly. The material is produced by mixing (a) the soln. of EDC, (b) the coagulating soln. and (c) short fibre fibrous material under shearing stress for coating the fibrillated material of EDC on the short fibre fibrous material.

The fibrous material can be processed to tobacco filter (A) by filling the mixt. obtd. in the matrix for tobacco filter, removing the liq. and drying it, (B) by mfg. the mixt. obtd. in sheet form, winding the sheet up under wet state in filter form and drying it, (C) by drying the sheet obtd. in and winding it up in filter form and (D) by sepg. the liq. from the mixt. obtd., drying it and prepg. tobacco filter using it and other material together. Thus obtd. tobacco filter removes harmful components from tobacco smoke (e.g. tar, etc.) with rather low removing effect on the flavouring components (e.g. nicotin, etc.) and rather low filtering resistance. 12.4.79 as 044648. (7pp5)

SB ★ D18 87402 C/49 ★ J5 5136-278  
Formyl-anatabine extracted from tobacco leaves - used to improve the perfume of tobacco  
JAPAN TOBACCO & SALT PUB 10.04.79-JA-042465  
E13 P15 (23.10.80) A24b-03/12 A24b-15 C07d-211 C07d-213 C07d-401/04

Formylanatabine of formula (I) is extracted from tobacco

leaves or prepd. by reacting anatabine with N<sup>1</sup>-formylimidazole.



(I) is useful as a tobacco perfume improver, and may be used singly or in combination with other perfumes or tobacco additives, in partic. in the soln. in a solvent such as ethanol, water or ethylene glycol. Appropriate ratio of (I) to raw tobacco powder before rolling or packing is 0.00001-0.01%, pref. 0.00002-0.0001%.

In an example, to N<sup>1</sup>-formylimidazole soln. obtd. by reacting 1,1'-carbonyldiimidazole (1 g.) with formic acid (0.29 g.) was added dropwise to a soln. of anatabine (0.32 g.) in THF (5 ml.) and the resultant mix was allowed to stand at room temp. for 1 hr. The reaction mix was concd. to remove the solvent and the residue was purified by chromatography on alumina/hexane-ether (1:1) to give (I) (0.26 g.) as a colourless oil. Yield = 69%. 10.4.79 as 042465. (3pp104)

CELA ★ D18 88106 C/49 ★ US 4233-993  
Tobacco substitute with good pressure drop characteristics - prepd. from a cellulose deriv., particulate filler and blowing agent  
CELANESE CORP 17.03.78-US-887572 (15.07.69-US-841969)  
A97 E37 P15 (18.11.80) A24b-05/16 A24d-01/18

Smoking material in film form, of density 0.3-0.6 g/cm<sup>3</sup> and contg. no tobacco, comprises as the prim. combustible material (1) carboxy-methyl cellulose or its salt, or carboxy-ethyl, hydroxy-ethyl, methyl, ethyl, hydroxy-propyl or carboxy-methyl hydroxy-ethyl cellulose; and as particulate filler (2) TiO<sub>2</sub>, MgO, silica gel, Na alginate, silica aluminate, CaCO<sub>3</sub>, diatomaceous earth, dolomite, C, perlite, magesite, zeolite or vermiculite. Wt. ratio of (1) to (2) is 15:85-85:15.

Material is a tobacco substitute. It produces low amts. of particulate matter on combustion, and in a smokable column exhibits a pressure drop similar to that of a tobacco-contg. column of comparable size. 17.3.78 as 887572 (+10.1.72, 24.9.73, 25.8.75-US-216763, 400465, 607301) (4pp558)

See Also

D13 US 4234463

## D2: DISINFECTANTS; DETERGENTS

### D21: DENTAL; TOILET PREPARATIONS

EU D21 60608 A/34 = DS 2705-670  
Water-soluble elastin hydrolysates prodn. - by acid treatment followed by enzymatic degradation with alkaline protease(s)  
FREUDENBERG, CARL FA 11.02.77-DT-705670  
(D16) (27.11.80) \*DT2705-670 C07g-07  
Water-soluble hydrolysates are prepd from raw material contg. elastin, e.g. waste from skins, sinews, neck tendons, etc. The purified raw material is hydrolysed for at least 2 hours with an (in)organic acid at above 80°C and a pH of 2 or under 4. After purifying with water the material is hydrolysed with alkaline bacterial proteinase at a pH optimum for the proteinase used and over 8.5 at 30-70°C in presence of alkali and 0.01-1.0 mole/litre urea. At the end of the hydrolysis the enzyme is inactivated by heat. Proteinase is pref. obtd from a Bacillus species such as Bacillus alcalophilus and/or a Streptomyces species such as Streptomyces griseus. The hydrolysate prod. is useful in cosmetics and as a protein of middle molecular wt. 11.2.77 as 705670 (p068)

BINT D21 45287 C/26 = DS 2854-534  
Dental pulp cavity filling material consisting of collagen - obtd. from e.g. bone by washing, treating with hydrogen peroxide and demineralising with complexing agent or ion exchanger  
BRAUN MELSUNGEN AG 16.12.78-DT-854534  
B04 (27.11.80) \*DT2854-534 A61k-06/02  
Dental filler, comprising collagen prepd. from bones, is new. Prepn. of these materials comprises disintegration of bones; removal of blood dyes and soluble proteins with water; removal of water-insoluble albumin and proteins with aq. H<sub>2</sub>O<sub>2</sub>; the residual material is then washed with water, de-fatted with an organic solvent, and the mineral components are removed with complexing agents or ion exchange resins; residual salts are sep'd by dialysis with flowing water; and the prod. is sterilised, opt. with freeze-drying. Pref. calcitonin is also added. 16.12.78 as 854534 (3pp047)



DISZ/ ★ D21 86514 C/49 ★DT 2920-566  
Artificial dentures mfr. - by thermo-forming plastic foil on wax model for use as cast resin mould  
DISZLER R 21.05.79-DT-920566  
A96 P32 (27.11.80) A61c-13

Artificial dentures are produced by applying a wax model, complete with plastic teeth, on a heptagonal plaster cast base with a peripheral groove. The wax is deep frozen, preferably to a temperature of under  $-15^{\circ}\text{C}$  and used as the pattern for a deep drawn plastic foil. After removal of the wax the teeth are re-inserted in the plastic foil which is applied to the grooved base so that cast resin can be filled in through an opening to take the place of the wax.

This simplifies the manufacture of dentures and saves much time and labour. 21.5.79 as 920566(12pp39)

SOBO/ ★ D21 86563 C/49 ★DT 2921-863  
Pumice stone substitute, esp. for cosmetic use - comprising moulded mixt. of granular abrasive and binder  
SOBOTTA H 26.05.79-DT-921863  
P61 (27.11.80) A61k-07/48 B24d-15/02

Moulded articles with an abrasive or scouring action, esp for skin care, comprise granular pumice (or other abrasive) and an inorganic or organic binder.

The articles pref. contain 20-80% (esp. 50-60%) pumice with a particle size of  $\leq 400$  (esp. 150-300)  $\mu\text{m}$  (e.g. waste pumice dust). The binder can be gypsum and/or cement or a low-melting plastics powder. Moulding can be effected by mixing the ingredients with water and pressing or casting the mixt., or by dry-pressing at elevated temp. Dyes and/or perfumes can be added before moulding. The surface of the mouldings can be roughened with sand or other abrasives.

The prods are less expensive to produce than conventional pumice stones and have greater mechanical strength. 26.5.79 as 921863(8pp367)

CHEE/ ★ D21 86633 C/49 ★DT 3018-874  
Metal powder with silver tin alloy coating - where powder has low silver content, but can be amalgamated with mercury to make dental alloys

CHEETHAM J J 17.05.79-AU-008827 (17.05.79-AU-008826)  
M22 P53 (M26) (27.11.80) B22f-09

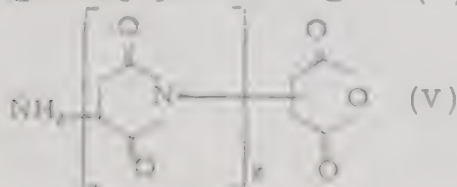
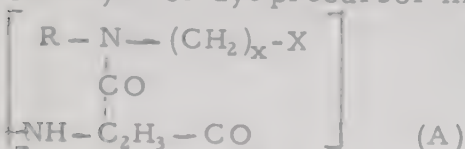
In the powder are particles with a core contg. only a small amt of Ag, pref.  $< 5\%$  and with an Ag-Sn coating. The core is pref. metal, esp. Cu, Ni, or Cu-Ni; but may alternatively be non-metallic, esp. an inorganic material or glass. The coating pref. contains by wt. 35-85% Ag, 7.5-40% Sn, 0-40% Cu; esp. 50-70% Ag, 20-35% Sn, 5-20% Cu.

The particles are pref. 1-45, esp 5-40  $\mu\text{m}$ , in size, with a coating min. 1 and esp. min. 4  $\mu\text{m}$  thick. The metal powder pref. contains 2-40, esp. 5-25% Ag and 1-9% Sn; or 10-90% Ag, 1-30% Sn, and possibly 1-10% Cu. The core may also be coated with resin.

The metal powders will form amalgams with Hg, but have a much lower content of Ag than similar conventional materials. 16.5.80 as 018874(24pp1144)

OREA ★ D21 86664 C/49 ★DT 3019-827  
Non-diffusing keratin fibre-dyeing polymer or mixt. - prepd. by reacting poly(dehydro-aspartic acid with dye gp.-modified amine  
L'OREAL SA 25.05.79-FR-013347  
A23 E24 (A96) (27.11.80) A61k-07/13 C08g-69/08

Dyeing polymers, or polymer mixts., contain units having formula (A) (where  $R_1$  is H or alkyl;  $x$  is integer  $\geq 2$  and  $X$  is a dye- or dye precursor mol gp.).



The polymers or polymer mixts. are prepd by reacting polydehydroaspartic acid having formula (V) (where  $z$  is integer 15-500) with  $\geq 1$  amine having formula  $R-NH-(CH_2)_x-X$  (II), in (II): (V) mol ratio  $m_1$ , where  $m_1$  is an integer or fraction 1 to  $z+1$ .

The polymer(s) are used as hair dyes, e.g. as aq., aq. alcoholic solns ready for use, or as after-shampoo lotions, colour-shampoos or colouring waving lotions. Dye diffusion into skin is prevented. The polymer dyes are less toxic than the non-polymer dyes. Dyeing on hair is homogeneous. 23.5.80 as 019827(48pp200)

TAKA/ D21 75273 B/41 =EP-18-999  
Sheet of starch material for fixing dentures - is placed between denture and alveolar ridge to permit easy rapid fixing

TAKAHASHI K 20.02.78-JA-U19772  
P32 (26.11.80) \*WP7900-710 A61c-13/22

D/S: E(DT, FR, GB)

9.2.79 as 900188

SPIT/ ★ D21 86783 C/49 ★EP-19-301  
Hair conditioner contg. alkanol soluble soybean lecithin fraction - to facilitate combing, reduce static charge and prevent fly-away

SPITZER J G 22.05.79-US-041377  
(26.11.80) A61k-07/06

D/S: E(DT, FR, GB, IT).

Hair conditioner contains an alcohol-soluble fraction (A) of soybean lecithin dissolved in a 2-3C alkanol. (A) lubricates the hair; facilitates combing; reduces static accumulation during combing and inhibits fly away.

Pref. concn. of (A) is 0.3-3 wt.% and specified solvents are ethanol, n-propanol and isopropanol. The soln. is pref. applied by spraying.

Unlike known conditioners based on cationic surfactants, (A) is compatible with shampoos without the cumulative deposit problems of cream rinses. It is easily dispersed in water and washed from the hair, and the use of an alcohol soln. provides rapid drying. (A) is a more effective conditioner than whole soybean lecithin. 21.5.80 as 102826 (19pp1251)

(E) ISR: \_\_\_\_\_

DENT- D21 86329 C/48 =EP-19-602  
Plaque-dissolving tooth-paste - contg. terpene hydrocarbon as solubilised gel., emulsifier, surfactant, thickener, and water  
DENTAL THERAPEUTICS 03.05.79-SW-003856  
(26.11.80) \*WP8002-371 A61k-07/16

D/S: E(BE, CH, DT, FL, FR, GB, IT, NL, OE, SW).

Toothpaste contains (by wt.): 1-10% of a halogen-free hydrocarbon (I); 1-10% emulsifier (II); 1-5% surfactant (III); 0.5-5% thickener (IV);  $H_2O$  (to 100%); and opt.  $\geq 30\%$  humectant together with conventional abrasives, anti-carries agents, and flavours, etc. The (I) and (II) contents are of the same order of magnitude, while (I) is solubilised and evenly distributed as a gel.

The toothpaste effectively removes plaque from teeth not by the action of hard brushing, but by simple dissolution.

29.4.80 as 850066 (13pp478).

(E) ISR: US3705940; FR2194411; US3876759; FR2201865; US3574824; FR--M7536; FR-778232; 1 Journal reference.

BADI D21 88350 Y/50 =GB 1580-745  
Copolymer of methyl methacrylate, alkyl acrylate, (meth)acrylic acid - with low water uptake, for use in hair lotions

BASF AG 15.05.76-DT-621722

A14 (A96) (03.12.80) \*DT2621-722 C08f-220/14

Mfr. of a (meth)acrylic acid/(meth)acrylate copolymer comprises copolymerising (w.r.t. total wt. of monomers) (a) 45-80 wt.% methyl methacrylate; (b) 10-30 wt.% of  $\geq 1$  3-12C alkyl acrylates; and (c) 10-25 wt.% of acrylic acid and/or methacrylic acid, at  $140-300^{\circ}\text{C}$ . and 2-50 bars pressure in the presence of an initiator which forms radicals.

The copolymers are used as an active ingredient in hair setting compns. i.e. a film forming agent. The agent has low water absorption, whilst providing a good stiffening effect and can be combed out without difficulty. 13.5.77 as 020171 (6pp954)

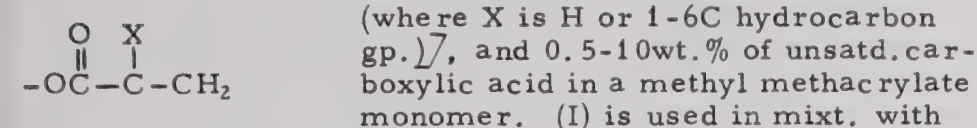
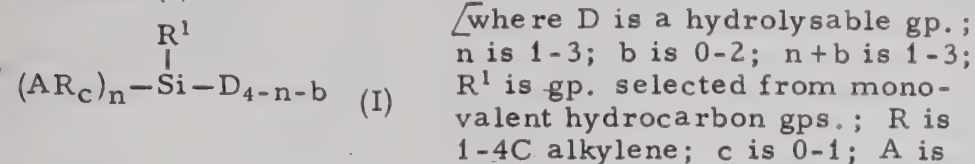


**GCSH-★ D21 87131 C/49 ★J5 5135-117**  
Resin compsn. for dental plate - has a silane cpd. and unsatd. carboxylic acid in methyl methacrylate monomer

GC SHIKA KOGYO KK 10.04.79-JA-042520

A96 (A14) (21.10.80) C08f-220/14 C08k-05/17

Compsn. comprises mixing 0.5-20wt.% of a silane cpd. of formula (I):



powdery methyl methacrylate type polymer with mixing ratio 3:1-1:3.

The compsn. improves physical and chemical properties such as breakage resistance, impact resistance, solvent resistance, etc. considerably without damaging the methacrylic type plate material which is widely used in dentistry. The compsn. sticks to Co chrome type, Ni chrome type alloy and ceramic teeth strongly. 10.4.79 as 042520 (6pp57)

**POKK ★ D21 87360 C/49 ★J5 5136-213**  
Cosmetic compsn. - obt'd. e.g. by coating pigment and/or powder with water-repelling agent, baking, coating with oily agent and baking

POLA KASEI KOGYO KK 10.04.79-JA-042546

(23.10.80) A61k-07

Cosmetic comprises (a) compsn. having three layer structure obt'd. by coating pigment and/or powder with water-repelling agent, baking, coating with oily agent and baking; or (b) compsn. having three layer structure obt'd. by coating pigment and/or powder with oily agent, baking, coating with water-repelling agent and baking; or (c) compsn. having two layer structure obt'd. by coating pigment and/or powder with mixt. of water-repelling agent and oily agent and baking; or (d) compsn. obt'd. by coating pigment and/or powder with mixt. of water-repelling agent and oily agent, baking, mixing with uncoated pigment and/or powder, coating mixt. again with the mixt. of water-repelling agent and oily agent and baking. Pigment having average particle size 0.01-1.2μ is used and powder of average particle size 1.0-2.0μ such as talc, kaolin, black mica, crystalline cellulose, etc. is used. Water-repelling agent is silicone oil or metallic soap and oily agent is squalane, liq. paraffin, vaseline, microcrystalline wax, etc. Usually water-repelling agent and oily agent are coated in amt. 0.6-3.5% and 0.5-5% respectively on pigment and/or powder.

Cosmetic does not cake and has excellent spreading properties. Make-up made with the cosmetic has excellent affinity to skin. 10.4.79 as 042546. (11pp5)

**KANE D21 31285 W/19 = J8 0043-443**  
Skin whitening cosmetics contg. ascorbic and urocanic acids - suitable for long term use

KANEBO KK 25.00.73-JA-000437

(06.11.80) \*J49086-554 + A61k-07

Ascorbic acid and its esters are whitening agents for the skin and their activities are enhanced in the presence of urocanic acid and its esters.

In an example, a lotion was prep'd. by dissolving a mixt. of glycerin 2, propylene glycol 1, citric acid 0.2, ascorbic acid 1, urocanic acid 0.5g and H<sub>2</sub>O 85.3 g in 95% EtOH (10g). The lotion has an excellent whitening effect when applied to the skin once a day for 3 months. 25.00.73 as 000437, A61k-7/00 (6.11.80) KANEBO KK (5pp)(J49086554)

**POKK D21 43452 W/26 = J8 0043-444**  
Stable, nonirritant nontoxic cosmetic preps. - using colouring agent microgranules coated with films

POLA CHEM IND KK 08.06.73-JA-064474

A96 (06.11.80) \*J50013-542 + A61k-07/02

Colouring agent microgranules coated with films (such as polystyrene, wax, polyethylene or vinyl chloride-vinyl acetate copolymer) are incorporated into cosmetics to give a stable nonirritant, and nontoxic preps. In an example, a lipstick contg. castor oil 6.0, titanium oxide, 4.0 carnauba wax 15.0, ozocerite 15.0 liq. paraffin 20.0, isopropyl myristate 10.0, and lanolin 27.0, coated permanent orange 2.5, and perfume 0.5%. 8.6.73 as 064474, A61k-7/021 (6.11.80) POLA CHEM. IND. KK (4pp) (J50013542)

**SHIS D21 43117 B/23 = J8 0043-445**  
Manicure compsn. - contg. polymer emulsion of specific particle size as base

SHISEIDO KK 30.09.77-JA-118017

A96 (06.11.80) \*J54052-736 A61k-07/04

Manicuring agent contains 5-60 w/w % (as solids) of the polymer emulsion having particle size < 0.1 μ as the base. As polymer emulsion, the emulsion of acrylic polymer, PVAC, vinylacetate copolymer, vinylacetate-vinylidene-chloride polymer, olefin polymer, etc. can be used.

In the case of aq. nail enamel and aq. nail enamel overcoat, the micropolymer emulsion is combined on an amt. of 25-60% for attaining the film excellent in glossiness. In the case of aq. nail enamel base coat, the micro-polymer emulsion is combined in an amt. of 5-25% for attaining good adhesion and hard film. 30.9.77 as 118017, A61k-7/043 (6.11.80) SHISEIDO KK (7pp5) (J54052736)

**CHEM D21 32890 Y/19 = J8 0043-471**  
Cyclic diesters prep'n. of dodecanedioic acid - by polyester thermolysis using stannous salts of organic acids or stannic oxides as catalysts

CHEM WERKE HULS AG 22.10.75-DT-547267

A35 E13 (A23) (06.11.80) \*DT2547-267 C07d-321 + A61k-07/46 B01j-31/02

Cyclic diesters of dodecanedioic acid with 2-12C aliphatic diols, opt. substd. with < 2 1-4C alkyl, are prep'd. by the catalytic thermolysis of the corresp. linear polyesters at reduced press. e.g. < 1 mbar, and 200-300 (250-280)°C.

Catalysts are Sn(II)-salts of < 18C aliphatic monocarboxylic acids < 36C aromatic or araliphatic monocarboxylic acids, < 18C aliphatic or aromatic hydroxy-, poly- or ketocarboxylic acids, or organo-Sn cpds. having formula: O=SnR<sub>1</sub>R<sub>2</sub> (where R<sub>1</sub> and R<sub>2</sub> are 1-18C alkyl or 6-36C aryl or aralkyl).

The esters are used as fixatives in cosmetic industry, e.g. for perfumes, soaps and mouth-washes. Esters are prep'd. in high yields, e.g. 70%. They are free from toxic cpds. removed with difficulty, e.g. Pb cpds. originating from use of Pb catalysts.

In an example, 1,4-dioxo-cyclo-hexadecane-5,16-dione was prep'd. in 80% yield by thermolysis of dodecanedioic acid/ethylene glycol polyester catalysed by 3% Sn(OAc)<sub>2</sub>, at 270°C 1 mbar. 21.10.76 as 125570 (clg.22.10.75-DT-547267) C07d-321/00, A61k-7/46, B01j-31/02 (6.11.80) CHEM WERKE HULS AG (6pp) (J52051385)

**SUNZ D21 19259 C/11 = J8 0044-043**  
Compsn. for removing skin discolouration - includes yolk or lecithin oil, reducing sulphur contg. cpds. and acidic bromate compsn.

SUN STAR HAMIGAKI K 17.07.78-JA-087412

(10.11.80) \*J55015-429 A61k-07

Skin-decolourising agent consists of (a), (b) and (c) or (a') and (c), where (a) contains yolk oil or lecithin-oil mixt. (b) contains sulphur-contg. cpd. showing reducing property, (a') contains both (a) and (b), and (c) is acidic and contains bromate. Blotches, freckles, maculae and the discolouration of skin by melanoderma, can be removed by the agent with-out stimulating the skin.

Specifically, the lecithin-oil mixt. is prep'd. by mixing lecithin and vegetable oil such as soy bean oil in wt. proportion 30-40:70-60. The component (a) contains yolk oil or lecithin-oil at > 50 w/w %. As the S-contg. cpd. basic



thioglycolate (e.g. ammonium thioglycolate), basic thiolactate, basic thiopropionate, basic thiosalicylate, bisulphite and cysteine can be used alone or together and they are present at 1-10 w/w % in (b). As the bromate, alkali metal bromate esp. K bromate can be used. Pref. the pH of (b) or (a') is adjusted to 7.5-8.5 and pH of (c) to 6.5-5.5. Component (b) has unpleasant odour due to sulphur-contg. cpd. and it is pref. to mix the (a) and (b) in wt. proportions 9-5:1-5 and to stand the mixt. at 10-30°C for 1-3 days to suppress the odour. 17.7.78 as 087412, A61k-7/00 (10.11.80) SUN STAR HAMIGAKI K (5pp5) (J55015429)

**BEEC** D21 07126 R/05 = J8 0044-044  
Gel-base toothpaste  
BEECHAM GROUP LTD 23.07.68-GB-035109  
A16 (10.11.80) \*DT1937-001

**AJIN** D21 72956 U/48 = J8 0044-045  
Toothpaste compsns - compsns - contg glyceride phosphoric acid esters  
AJINOMOTO KK 22.11.71-JA-093939  
E11 (10.11.80) \*J48058-152 + A61k-07/16

Dentifrices are prepd. with mono- and diglyceride phosphates, or their alkali(ne earth) metal salts. These substances have effective antimicrobial activity and readily produce foams during tooth brushing. The potency of these agents against *Lactobacillus* and *Staphylococcus* is 6-14 and 6-20 times that of Na N-lauroyl zirconate, resp. 22.11.72 as 093939, A61k-7/16 (10.11.80) AJINOMOTO CO LTD. (7pp) (J48058152)

**ZINI** D21 00178 S/01 = NL-165-375  
Odour binding fungicidal salts of unsaturated - hydroxylated carboxylic acids  
GRILLO WERKE AG 14.01.69-OE-000360 (19.07.68-DT-792074)  
E12 + P34 (17.11.80) \*DL-76-578 + A61k-07 A61k-31/31 A611-09/\*

Odour-binding prepsns. (I) are prepd. contg. a Zn-salt of one or more unsatd. (17-21C) hydroxycarboxylic acids together with one or more synergists in the form of salts of partly hydrogenated phenanthrene carboxylic acids which have little- or no water solubility. In a pref. embodiment the active substance used in (I) is Zn-ricinoleate together with 3-10 wt. % of phenanthrene cpd. and 1-5 wt. % of a 2nd synergist consisting of salts and/or esters of unsatd. (13-21C) carboxylic acids with min. two -OH gps. which have little- or no water solubility, with the exception of Zn-salts.

(I) have great odour-binding activity for many offensive odours such as those caused by perspiration etc. They have also fungistatic activity and may be used in cosmetics such as agents for female hygiene and esp. hair-care agents and foot-prepsns. They may also be used in animal hygiene, impregnation of textiles, in washing agents, air-purificn. agents, polishes, etc. 17.7.69 as 010995 (8pp)

**HENK** D21 39183 W/24 = NL-165-376  
Tetraaminopyrimidines as developers in oxidation hair dyes - esp. used with meta aminophenol couplers for blue shading dyes  
HENKEL KG AUF AKTIEN 02.10.74-DT-447017 (29.11.73-DT-359399)  
E13 (17.11.80) \*BE-822-542 A61k-07/13

Hair-dyeing agents (I) are prepd. by incorporating tetraaminopyrimidines of general form (II): together with coupling components, in which  $R_1-R_6 = H$ , (1-4C) alkyl,  $-(CH_2)_n$ -X or opt. substd. aryl; whereby  $R_1$  and  $R_2$ ;  $R_3$  and  $R_4$ ; and  $R_5$  and  $R_6$  may form together with N an opt. substd. heterocyclic 5-6-membered ring with one or two N-atoms or with one N- and one O-atom;  $n = 1, 2, 3$  or 4; X = hydroxyl, halogen,  $NH_2$ ,  $-NHR'$  or  $NR'R''$ ;  $R'$  and  $R'' = (1-4C)$ alkyl or form together with N a heterocyclic ring which opt. contains a further -N or -O-atom. Inorganic- or organic salts of (II) are included.

(I) are hair-dye agents on the basis of oxidn. dyes which give a large variety of very intensive colours. The

colours of (I) are fast, have good water-solubility and are stable upon storage. They are toxicologically- and dermatologically acceptable. 22.11.74 as 05288 (11pp279)

**COLG** D21 30884 U/22 = NL-165-377  
Polyamine polyphosphonates - useful as inhibitors to tartar formation on teeth

COLGATE PALMOLIVE CO (MONS) 12.11.71-US-198439  
B05 E11 (17.11.80) \*NL7215-084 A61k-07/22

Orally applicable formulation for inhibiting tooth scale or tartar is made by mixing ethylene diamine tetra bis-(meth-ylene phosphonic acid) or its pharmaceutically acceptable salt, and a suitable carrier. The formulation has a pH 5-11. The prepn. is very effective and has no adverse effect on the Ca of the tooth enamel, nor on tooth structure.

Typically formulations contain 0.01-10 wt. % active component, and are generally as pastes or powders. 8.11.72 as 015084 (5pp913)

**MINN** ★ D21 88105 C/49 ★ US 4233-976  
Styptic device for minor wounds - with porous hydrophobic fibre web contg. crystalline styptic agent

MINNESOTA MINING CO 06.07.78-US-922488 (03.12.76-US-747083)  
E33 P34 (18.11.80) A61m-07

Styptic device comprises (a) a porous web of hydrophobic fibres  $\geq 50 \mu$  thick, and (b) 0.05-0.9 g styptic material (I) per cubic cm of web. The (I) is releasably attached in crystalline form to the fibres. (I) is pref.  $AlK(SO_4)_2$  or  $Al(NH_4)(SO_4)_2$ .

The device causes bleeding to stop in a minor wound after application, without causing a significant pain sensation in the injured person. The blood forms a liq. medium, allowing the (I) to diffuse back to the wound site to cause a vascular styptic effect. 6.7.78 as 922488 (4pp1248)

**LEUT/** D21 63818 A/36 = US 4234-310  
Porous ceramic inlay for dental fillings - is impregnated with wetting agent or plastics that will firmly bond to a plastics filling

LEUTHARD PE 25.02.77-CH-002437

A96 L02 + P32 (18.11.80) \*DT2808-089 A61k-05/\*

A dental filling includes a preformed abrasive-resistant porous ceramic insert in a conventional plastic filling material located in a drilled cavity. The insert outer shape is different and unrelated to the cavity shape and the insert has an exposed surface aligned with the tooth surface to improve filling abrasion resistance.

The insert is impregnated with plastics which forms a firm bond with the filling. The insert surface pref. has open pores 5-50  $\mu m$  in dia. and the insert may be of triangular or rhombic cross-section. Two or more lateral insert surfaces may be non-planar and one may be concave. 14.2.78 as 877654 (5pp1358)

**ROHT** D21 80920 A/45 = US 4234-450  
Mouldable emulsion comprising oily and aq. components - can be moulded to stick-form prods. of use in cosmetics, medicine, etc.

ROHTO PHARM CO 12.03.77-JA-027213

A97 B07 (A97) (18.11.80) \*J53113-037 + B01j-13

Prepn. of non-fluidisable compsn. readily convertible into a fluidisable compsn. by slight stress or pressure is described.

Process comprises first cooling an emulsion of water-immiscible satd. fatty acid, water as 60-80 wt. % of emulsion and solubilising aid (I) and/or nonionic surfactant, from a temp. sufficient to keep the emulsion in a fluidisable state while stirring. Stirring is stopped at a temp. not lower than the temp. 50°C below the congealing temp. of the emulsion. Finally, cooling is continued to room temp.

(I) is hydroxy gp.-contg. amine or alkali hydroxide concn. of fatty acid in emulsion is pref. 10-50 wt. %. Pref. surfactants include polyoxyethylene sorbitan monostearate. Prod. is useful as a base for shaving creams, adhesive pastes, printers' inks, shoe polishes etc. 2.3.78 as 884992 (9pp936)



**GILL** D21 20300 C/12 =US 4234-475  
Proteinaceous surfactants used in skin care prods. - are prepd. by direct reaction of carboxylic acids with protein(s)

GILLETTE CO 15.08.75-US-605166

(18.11.80) \*CA1072-952 +C08h-01/06

Surfactant is produced by heating at 210-260 (220-240)°C a mixt. of 1-10 equiv. wts. of a protein with 1 equiv. wt. of a reagent selected from aromatic carboxylic acids, 1-6C alkylated aromatic carboxylic acids, halogenated aromatic carboxylic acids and (un)satd. 6-54 aliphatic carboxylic acids.

Prof. the mixt. is maintained in an atmos. of oxygen-free gas inert to the mixt. during the heating step. The process provides surfactants from proteinaceous materials by a simple one-step operation without the necessity for isolation of intermediate prods. or of purificn. by removal of by-prods.

The surfactants are mild, biodegradable, resistant to rime, have good protective-colloid and emulsifying properties etc. 15.8.75 as 605166 (3pp924)

**PACK/** ★ D21 88270 C/49 ★US 4234-566  
Synergistic antiperspirant compsn. - comprising an ethanolamine, ethylene di-amine, alkylamine, phenothiazine or piperazine antihistamine and astringent metal salt

PACKMAN EW 29.06.79-US-053399 (12.11.76-US-741298)

E19 (18.11.80) A61k-07

Antiperspirant compsn. comprises an ethanolamine, ethy-

lene diamine, alkylamine, phenothiazine or piperazine antihistamine or its salt, together with a metal salt having astringent properties and a carrier.

Antihistamine and metal salt act together to produce a synergistic effect, giving prophylactic control of sweating or reduction of perspiration when the compsn. is applied topically to a human, e.g. in the axillary area. 29.6.79 as 053399 (10pp558)

**STAU** ★ D21 88272 C/49 ★US 4234-568  
Inhibiting the formation of dental plaque - using compsns. contg. amine salts of tri:meta:phosphoric acid

STAUFFER CHEMICAL CO 30.03.79-US-025440

B03 E11 (18.11.80) A61k-07/22

The formation of dental plaque is inhibited using oral compsns. contg. 0.05-5 wt. % of a cpd. (I) which is the reaction prod. of a 16-18C aliphatic alkylene prim. amine (II) and trimetaphosphoric acid (III) (mol. ratio (II):(III) = 1.9-3.1:0.9-1.1).

Method using (i) effectively inhibits the formation of dental plaque on teeth. (I) do not have the unpleasant odour or flavour normally associated with amines. Compsns. pref. contain 0.1-1 wt. % of (I). (I) is pref. prepd. by reaction of 3 mol. of (II) with (III) at room temp. Pref. (III) are 18C alkenylamines. 3.3.79 as 025440 (4pp495)

See Also

D12 FR 2449696

D13 US 4234463

D13 US 4234509

## D22: BANDAGES; DRESSINGS

**TEMP-** ★ D22 86389 C/49 ★BE-883-873  
Sterilisable surgical tampon with absorbent pad and waterproof backing - has reduced cost by eliminating sewing and using less gauze

TEMPO SANYS 10.12.79-FR-030253

A96 P32 P34 (16.10.80) A61f A61l

This type of tampon comprises a flat, absorbent pad bound with a sheet of textile material such as gauze. The gauze covers entirely the inner face of the pad and its side edges and laps over on to the outer face of the pad.

The gauze is now held in place on the pad by a sheet of waterproof film which covers the outer face and is heat sealed to the gauze cover as portion of the pad. The gauze sheet pref. overlaps the outer face of the pad to the least extent necessary to ensure adequate adhesion to the waterproof film.

The water-proof film is pref. a plastic film, eg. a polyamide or polyester, coated with a heat-sensitive adhesive on its inner face.

Prodn. of sterilisable, surgical tampons, dressing pads etc. particularly for application to post-operational wounds. The unit cost of prodn. is reduced in comparison with previous tampons. Glueing and sewing operations are eliminated the amount of covering gauze required is greatly reduced. 17.6.80 as 883873 (10pp448)

**MEDI-** D22 09050 T/06 =DS 1767-346  
Cylindrical sterilizer - with hydraulically sealable rectangular opening

MEDIZIN-APPARATE GM (AIG /) 30.04.68-DT-767346

P34 (27.11.80) \*US3632-303 +A61l-02

steriliser for medical appliances consists of a cylindrical autoclave with a charging opening at one of its flat face ends. The door for this opening is a rectangular plate, designed for sliding or swivelling. The autoclave is reduced near the door from a cylindrical to a rectangular shape by tapering walls or by matching contact flanges for the rectangular door. Hydraulic or pneumatic power cylinders can be used for the door operation. Clamps or spindles ensure a tight seal.

The cylindrical shape of the autoclave tank enables its wall thickness to be made thinner than is required for a rectangular tank; a rectangular door is easier to mfr and

to seal tight. 30.4.68 as 767346 (7pp39)

**ZAMI** D22 17637 A/10 =DS 2739-661  
Benzalkonium chloro-iodide - useful as an antibacterial and antifungal agent

ZAMBELETTI DR L SPA 07.02.77-IT-041006

B05 C03 P34 (27.11.80) \*BE-858-321 A61k-31/14 C07c-87/30

Iodinated benzalkonium chloride with average formula  $C_{22}H_{40}Cl_2IN$  is new. Prepn. of these derivs. comprises treatment of benzalkonium chlorides with  $I_2$  (at least Stoichiometric amts) in the presence of  $Cl_2$  (at least Stoichiometric amts., or ppt. in excess) in aq soln. The halogens may be generated in situ. The prods are useful bactericides 2.9.77 as 739661 (5pp047)

**BRAE/** ★ D22 86512 C/49 ★DT 2920-533  
Sterilisation of equipment for mfr. of dried vegetables - by treating with hydrochloric acid and/or superheated steam

BRAEUTIGAM H 21.05.79-DT-920533

(27.11.80) A23b-07/02

Method of reducing the germ count during the mfr. of dried vegetables comprises repeatedly treating the surfaces coming into contact with the vegetables in the mfg. equipment by spraying with an HCl soln. under pressure and/or briefly contacting with superheated steam.

Practically germ-free dried vegetables can be produced without contaminating the vegetables or introducing additives. 21.5.79 as 920533 (7pp367)

**HERZ/** ★ D22 86546 C/49 ★DT 2921-230  
Steam sterilising apparatus - with heater, level indicator and drains for use in vertical or horizontal position

HERZ H 25.05.79-DT-921230

P34 (27.11.80) A61l-02/06

A steam sterilising apparatus with a heating device in a heating jacket has both the heating device, the liq level indicator and the drain cocks so arranged that the appts can be used either in the horizontal or vertical position. In the former position, the charging is through the door from the front, and in the latter position it would be charged from the top. The control panel can also be fixed in a position convenient to the user.



The sterilising appts is more versatile and universal in its application, with the same basic modules. 25.5.79 as 921230(29pp39)

LEMC/ D22 19960 B/10 =EP--18-968  
Timed cold steriliser - with the timer automatically reset on opening the steriliser  
LEMCHEN MS 13.02.78-US-876961  
P34 (26.11.80) \*US4141-956 +A611-02  
D/S: E(FR)  
13.2.79 as 900238 (WP 7900620)

HYMA/ ★ D22 86688 C/49 ★EP--19-010  
Device for dispersing volatile substance into atmosphere - to provide deodorants, insecticides, perfumes, medicaments etc.  
HYMANN S 10.05.79-US-037688  
A97 B07 C03 P14 P34 (26.11.80) A01m-01/20 A01n-25/18 A61k-09 A611-09/12  
D/S: E(BE, CH, DT, FR, GB, IT, NL).

Device for dispersing a volatile substance into the surrounding atmosphere comprises a polymeric layer bonded to form a reservoir. The layer is impervious to liquid but permeable to gas and contains a volatilisable substance (I). A first barrier layer is adhesively attached to, and covers, the outer surface of the polymeric layer.

(I) disperses through the polymeric layer to attack and degrade the adhesive bond, so that the barrier layer is readily removable. When it is removed, (I) is volatilised from the exposed surface.

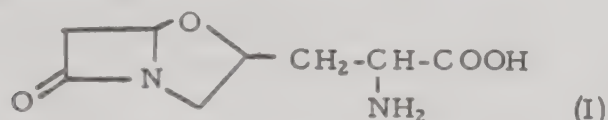
(I) include deodorants, insecticides, insect repellants, perfumes, medicaments, corrosion inhibitors, deodorants and germicidal agents. (I) are dispensed slowly and linearly over a prolonged period as soon as the barrier layer is removed. The device is simple and inexpensive to manufacture.

16.7.79 as 102485 (30pp1248).

(E) ISR: US4145001; GB1516845; US3685734; US3844478; US3815828; GB1273322; US3785556; FR2091855; FR2336946; US4161283.

HOFF D22 38129 C/21 =EP--19-148  
2-Alanyl-clavam antibiotic - produced by fermentation of *Streptomyces clavuligerus*  
HOFFMANN-LA ROCHE AG 04.05.79-US-035884  
B02 E13 (26.11.80) \*US4202-819 A61k-31/42 C07d-498/04 +C07d-20 C07d-26 C12p-17/18  
D/S: E(BE, CH, DT, FL, FR, GB, IT, NL, OE).

Antibiotic of formula (I) is new:



(I) is active in vitro against a wide range of bacteria, fungi and yeasts (MIC generally  $>1000 \mu\text{g/ml}$  in antibiotic test medium) and can be used, e.g. in disinfectant cleaning compns.

30.4.80 as 102351 (14pp367).

(G) ISR: DT2725690; DT2702091; DT2517316; 2 Journal References.

UNIL ★ D22 86808 C/49 ★EP--19-371  
Absorbent material for immobilising blood - comprising swellable crosslinked anionic polyelectrolyte contg. transition metal counterions which coagulate blood  
UNILEVER LTD 23.04.79-GB-014067  
A96 P34 (26.11.80) A611-15  
D/S: E(BE, DT, FR, GB, NL, OE)

Full Patentees: Unilever Ltd. (GB); Unilever NV.

An absorbent material suitable for immobilising blood consists of a blood swellable, water-insol., covalently crosslinked anionic polyelectrolyte having at least some of its anions associated with transition metal counterions which can coagulate blood. When the polyelectrolyte is contacted with blood, the transition metal counterions diss-

ociate from the polyelectrolyte and diffuse into the blood to cause coagulation.

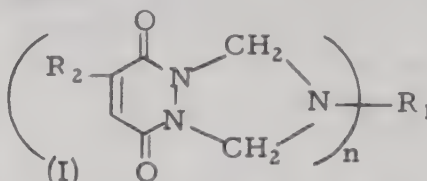
The material may be included in sanitary towels and tampons, and in various other disposable absorbent products including those for medical and surgical use. The material works by (1) absorbing the aq. fraction of the blood contg. low mol.wt. components and (2) gelation of a high mol.wt. protein fraction of the blood which is not absorbed.

23.4.80 as 301307 (25pp914).

(E) ISR: DT2737994; FR2305452; FR1293415; LU--68382; FR2302752; DT2702781; FR2310156; FR2331592.

FARH D22 25383 Y/15 #GB 1580-485  
Pesticidal triazolidino-pyridazin-diones - prepd. by reacting pyridazin diones with prim. amine and formaldehyde  
HOECHST AG 27.09.75-DT-543241 (25.03.77-GB-012636)  
C02 E13 F09 +P34 (F06) (03.12.80) \*DT2543-241 C07d-237 C07d-249 C07d-487/04 +A01n-43/90

Triazolidino-pyridazine-diones (I) where n is an integer; R is an n-valent organic gp.; and R<sub>2</sub> is H or methyl are new:



Pref. n is 1-3 and in particular n is 1 and R<sub>1</sub> is 1-18C alkyl or 5-8C cycloalkyl, which are opt. substd. The cpds. are prepd. by reacting a pyridazinedione with a

prime amine and formaldehyde.

The cpds. are fungicides and bactericides. They are useful as plant protecting agents, for the preservation of lacquers, dyes, glues, paints, sealants and drilling and cutting oils and the protection of wood and paper prods. and textiles. Their water solubility decreases with increasing length of the R<sub>1</sub> chain. 25.3.77 as 012636 (16pp945)

FAIL- D22 64656 Y/36 #GB 1580-550  
Panty with sanitary napkin compartment - having elasticated sides to longitudinal top opening and elastic around leg and waist openings

FAIL SAFE APP CORP (PAPA/) 16.09.74-US-506229 (14.09.77-GB-038407)

F07 P32 + P21 (03.12.80) \*US4044-769 A61f-13/16

A panty has elasticised waist and leg openings, and a sanitary napkin holding compartment formed by superposed fluid-tight plies in the crotch region and extending between front and rear spanning between the elasticised legs. A napkin held in the compartment is exposed through an opening in one ply over most of the length.

Elastic is secured along the opening to retain the compartment about the napkin without affecting the seal of the elasticised legs. The panty holds the compartment restrained from movement relative to the user. 14.9.77 as 038407 (4pp1358)

ELIL D22 60904 Y/34 =GB 1580-568  
Killing microorganisms in a container using plasma - created by focussing high powered laser beam within electromagnetic field  
ELI LILLY & CO 21.06.76-US-699010  
P34 (03.12.80) \*US4042-325 +A611-02/08

Microorganisms in a container are killed by generating an electromagnetic field in the container and single pulsing a focussed high-power laser beam in the field to initiate a plasma which is expanded and sustained for a sterilising period by the electromagnetic radiation energy of the field.

The field is pref. generated in a wave-guide tunnel tuned to radiation energy frequency, and the container is located in a cavity at the wave-guide end. The sterilising period is pref. 1 ms.-1 s. and the field may be a continuous wave field or a 120 Hz pulsed field. The container pref. has optically clear walls. 17.6.77 as 025339 (7pp1358)

MUND D22 63439 A/36 =GB 1580-596  
Storage-stable iodophor germicide compns. prepn. - by eliminating iodine and iodide(s) using specified oxidants  
MUNDIPHARMA AG 16.05.77-US-797094  
A96 B04 E19 +P34 (03.12.80) \*BE-866-395 A01n-59/12



Prodn. of organic iodophor germicidal compsn. which is free of iodide contamination and therefore non-corrosive is claimed. Process comprises reacting an organic iodophor-forming cpd. with  $I_2$ , a metallic iodide capable of releasing iodide ion or HI, in the presence of 0.001-1 wt.% (w.r.t. total compsn.) of iodate, bromate, chlorite, dichromate, hypochlorite, nitrite, permanganate or persulphate ion, or  $H_2O_2$ .

The iodophor former may be povidone or nonionic, cationic or anionic surfactant cpds. Prods. have improved stability and reduced toxicity. 18.4.78 as 015162 (10pp963)

**BATE/ ★ D22 86986 C/49 ★GB 2047-537**  
Air freshener and insect repellent vapour dispenser - with spray of air-fern having stems immersed in vapour source reservoir  
BATES M R 10.04.80-GB-011814 (10.04.79-GB-012562)  
(03.12.80) A61k-09/12

Dispenser comprises a reservoir holding a vapour source and a spray of 'airfern' with the stem ends located in the reservoir and the fronds projecting into the atmos.

'Airfern' is prepd. by washing *Sertilaria aganta* or *Hydrallmania falcata* recovered from its underwater environment, pressing to extract animal matter, drying to remove all remaining moisture, immersing in a glycerine-water mixt. and removing excess mixt. Mixt. pref. includes a mould inhibitor and the matl. is dyed before drying. Stems pref. pass through the top of a container to give the appearance of a potted plant. 10.4.80 as 011814 (4pp1358)

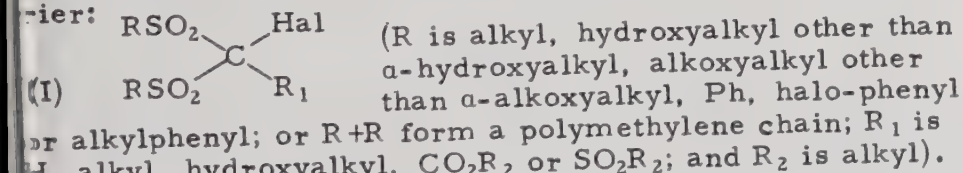
**MCMI/ ★ D22 86987 C/49 ★GB 2047-540**  
Limb splint - with rigid part spring biased against limb and from rigid element secured to splint  
MCMINN D J W 16.04.80-GB-012561 (24.04.79-GB-014252)  
P32 (03.12.80) A61f-05/04 A61f-13/04

A splint includes a rigid part secured to the splint and a rigid second part for engaging the limb within the splint. A spring biases the second part into contact with the limb and this part is guided in a set path relative to the first part.

The limb-engaging area of the second part is pref. not less than 4 cm.<sup>2</sup>, and the second part is flat. The two parts are pref. restrainable against movement under spring force and against relative rotation. The arrangement applies adequate pressure even when swelling accompanying fracture decreases and during muscular movement within the splint. 16.4.80 as 012561 (4pp1358)

**CADB ★ D22 87003 C/49 ★GB 2047-687**  
Microbiocidal compsns. esp. bactericidal and fungicidal - contg. halo-bis(hydrocarbyl-sulphonyl-methane or deriv.  
CADBURY SCHWEPES LTD 10.03.80-GB-008047 (09.03.79-GB-008334)  
C03 E14 (C02 E13) (03.12.80) A01n-41/10 C07c-147

Microbiocidal compsn. comprises a halo-bis(hydrocarbylsulphonyl)methane or deriv. of formula (I) and a carrier:



(I) are new when as defined above, provided that R is hydroxyalkyl or alkoxyalkyl;  $R_1$  is hydroxyalkyl or alkoxyalkyl (sic), or is  $CO_2R_2$  ( $R_2$  is alkyl having  $\geq 2C$ ) and R is alkyl; or R+R form a polymethylene chain and  $R_1$  is other than Me.

The compsns. have good antimicrobial action; esp. against bacteria and fungi, and they have good kill times against *Pseudomonas aeruginosa*. 10.3.80 as 008047 (7pp)

**MITA- ★ D22 87041 C/49 ★J5 5079-039**  
Zinc nitrohumate based deodorising agent - prepd. by reacting humic acid and nitric acid, adding zinc cpd. concentrating and drying, then granulating etc.  
MITAJIRI KAGAKU KOG 08.12.78-JA-152233  
A11 E12 J01 (14.06.80) B01j-20/24  
Deodorising agent (I) is composed of zinc nitrohumate (II)

as principal component. Prepn. of (I), comprises (i) obtaining (II) by the reaction between humic acid or humic acid-contg. material and nitric acid, and then by addn. of zinc cpd., (ii) concentrating and drying the obtd. reaction soln. to dryness, and (iii) granulating after mixing with clay-binder.

(I) has high deodorising effect, esp. for basic gas such as amine, ammonia, etc. As zinc-raw material, zinc hydroxide by-produced in anhydrous Glauber's salt-producing process from the solidification-soln. of viscose rayon spinning process is used. Examples of humic acid-contg. materials are peat and lignite. 8.12.78 as 152233. (3pp42)

**CIBA D22 17936 T/11 = J8 0044-060**  
Substd anilino-phenyl acetylhydroxamic acids - anti-inflammatories, analgesics, antipyretics and uv absorbers in sun-screening  
CIBA GEIGY AG 16.07.71-CH-010580 (09.09.70-CH-013415)  
B05 E14 (10.11.80) \*BE-772-333 A61k-31/13 + C07c-99 C07c-101

Novel cpds. of formula:- (where  $R_1 = H$ , lower alkyl or alk-oxy, or F, Cl or Br,  $R_2 = H$ , lower alkyl or alkoxy, F, Cl, Br or  $CF_3$ ,  $R_3$  and  $R_4$  are chosen from the same gps. as  $R_1$ , but  $R_1$ ,  $R_2$  and  $R_3$  are not all H), and their salts are prepd. by treating the corresp. amide or ester with  $NH_2OH$  or its salts in basic med-

ium. 8.9.71 as 068986 (clg. 9.9.70, 16.7.71-CH-013415, 010580) C07c-101/00, 99/00, A61k-31/135 (10.11.80) CIBA-GEIGY AG: (11pp) (J47006175)

**KIMB D22 33909 W/20 = NL-165-373**  
Flexible absorbent sanitary pads with soft edges - using adhesive and a pattern of embossed lines to contain the pad in its covers  
KIMBERLY CLARK CORP 20.12.73-US-426521  
A96 F04 P32 + P73 (17.11.80) \*US3881-490 A61f-13/18

An elongated, thin, absorbent, laminated pad is formed from a permeable cover of non-woven fibres, a central, absorbent fleece of fluffy wood pulp and a backing film impermeable to fluids, all having the same dimensions.

The cover and the fleece both have a pattern of lengthways-running, possibly undulating, impressed lines, which intersect the edges of the pad at uniform spacings. These determine zones of the fleece in which the fibres are moisture-conditioned, and are compressed through the thickness of the fleece. These zones are bonded by a water-soluble adhesive.

The backing film is fixed to the underside of the fleece by points of adhesive such as acrylic latices or other flexible polymer adhesives. These serve only to attach the surface fibres of the fleece to the cover and to the backing film.

In the edge zones there is no adhesion in depth, except where the impressed lines intersect them. Irritation by folded edges which moreover crack and intensify the action is eliminated, and displacement of the central fleece is prevented. 13.12.74 as 016252 (7pp1014)

**DETE- D22 33483 S/20 = NL-165-378**  
Formol disinfecting without forming polymer - deposits  
DETEC SA (DET-) 13.02.70-CH-002092  
E17 P34 (17.11.80) \*CH-503-498 A61l-09/02 + A61l-02/20

For the disinfection of a room by feeding in HCHO vapour which is afterwards neutralised by  $NH_3$ , the temp. of the room is raised to between 32 and 35°C, whilst the relative humidity is adjusted to around 75%, before the HCHO is used.

This eliminates the inconvenience that after disinfection there is still a smell of HCHO or  $NH_3$ . The new technique prevents the formation of HCHO polymer prods. on the walls of the room, which cannot be neutralised and later give off HCHO vapour.

A compact equipment for the operation is provided and is enclosed in a box on a trolley. 12.2.71 as 001868 (7pp)



HONI/ ★ D22 C/49 ★OE 7808-213  
Device for bactericide treatment of commodities with UV radiation  
HONIS R 17.11.78-OE-008213  
S05 P34 (15.11.80) A611-02/10

WOHR/ ★ D22 C/49 ★OE 7904-582  
Deep freezing blood plasma  
WOHR W 29.06.79-OE-004582  
(15.11.80) A61k-35/16

MOTE= ★ D22 87683 C/49 ★SU -712-469  
Antimicrobial textile material - contg. cellulose grafted with poly-N-tri-alkyl ethyl-ammonium acrylate or methacrylate and treated with acid antimicrobial cpd.

MOSC TEXTILE INST (COTT=) 30.06.78-SU-637482

A11 F06 (30.01.80) D06m-13/10

Antimicrobial properties are imparted to textile materials produced from a grafted copolymer of cellulose with a polymer contg. quaternary ammonium gps. by treatment with a soln. of an antimicrobial cpd. contg. an acid gp. This method is improved by using a textile material contg. poly-N-tri-alkyl-ethylammonium acrylate or poly-N-tri-alkylethylammonium methacrylate.

The acid gps. of the antimicrobial cpd. become firmly attached to the quaternary gps. of the substrate. As a result an undyed textile material treated by this method, is not discoloured by alkaline washing (up to 50 washings). Examples of antibacterial cpds. include hexachlorophen, yatren, fluorosilicic acid, etc.

Rogovin, Z. A., Virnik, A. D., Penenzhik, M. A. et al. Bul. 4/30.1.80. 30.6.78. as 63748 2 (2pp70)

KOZL/ ★ D22 87814 C/49 ★SU -728-862  
Rubber articles sterilisation - by siliconising after sterilisation, agitating in fluidised layer and drying under vacuum

KOZLENKO D SH 17.08.77-SU-523470

A35 P34 (05.05.80) A611-03

The process is for plugging flasks with hygroscopic or long-term-storage preps. It involves siliconising, sterilising and drying under constant agitation. For greater sterilisation, the siliconising is done after sterilisation. The agitation is in a fluidised layer and drying is under vacuum.

The plant comprises autoclave, inlet steam filter, steam-air purity filter, steam-jacket filter to sterilise incoming air, heat-exchanger, steam jacket on the drain lines, steam jacket to protect the air output line, barometric condenser to condense the departing water vapour, hydro-lock and vacuum pump.

Kozlenko, D. Sh., Gorshkov, P. T., Blyumkin, I. M. Bul 15/25.4.80. 17.8.77. as 523470 (3pp18)

LOCK/ D22 38776 A/22 =US 4233-969  
Water vapour and air permeable bandage - comprises a polyurethane foam with a smooth surface

LOCK P M 11.11.76-GB-047074

A96 P32 P34 (A25) (18.11.80) \*DT2750-592 A611-15

Wound dressing material comprises a non-laminated sheet of synthetic plastics material (I) which is permeable to water vapour and to air and which is impermeable to liq. exudate. The material has on one side a smooth glazed surface for application to a wound, a closed cell cellular region behind the smooth surface, and a denser region behind the cellular region, so that on contact with liq. exudate from a wound the dressing material will absorb a limited amt. of exudate but prevent it from passing through the dressing material.

Pref. (I) is a polyurethane prep. in the absence of water. Material is esp. useful as a temporary cover for burns, varicose ulcers, pressure areas and other related injuries. 10.11.77 as 850375 (7pp393)

DORT/ ★ D22 88117 C/49 ★US 4234-086  
Soiled surgical sponge handling appts. - has flat strip of open mouth plastic bags with weak connections between panels to stop gaping  
DORTON H E 02.10.79-US-081172 (20.04.79-US-031839)  
Q32 Q34 (18.11.80) B65d-30/22 B65d-33/02 B65d-85  
The appts. includes a flat strip of flexible plastic bags with open mouths and front and rear panels. There are three connections between each pair of panels, one easily rupturable and in the central lower part of the bag, and the others in the upper part at opposite sides of the centre.

The front panel is pref. transparent and the rear opaque and the connections are all weak easily rupturable heat seals. The first connection is pref 1/3 bag height from the bottom and the others are 3/10 the bag width from its centre. The upper connections limit gaping, while the bottom connections defines spaces for two sponges or if broken a space for a single large sponge. 2.10.79 as 081172 (4pp)

NATT D22 62324 C/36 =US 4234-662  
Pressure sensitive fusible adhesive prepn. - using prepolymer obtd. by copolymerising acrylic monomer with allyl acrylate or methacrylate

NAT STARCH & CHEM CORP 26.04.79-US-033199

A81 G03 +P42 (A14 A96) (18.11.80) \*BE-882-894 B05d-03/06

Mfr. of a pressure sensitive, hot melt adhesive comprises (i) copolymerising allyl (meth)acrylate with  $\geq 1$  copolymerisable acrylic monomer to obtain a prepolymer solid at ambient temp.; (ii) heating to a temp. (esp. 120-180°C) to render the prepolymer fluid and flowable; (iii) coating the prepolymer onto a substrate; and (iv) exposing to electron beam radiation of 1-4 (3-4) Mrads to crosslink the prepolymer.

The coated surface has excellent tack, cohesive strength and tack retention upon storage and use. 26.4.79 as 003199 (5pp982)

BUCL ★ D22 88314 C/49 ★US 4234-665  
Creosote and penta-chlorophenol wood preservative compsns. - have increased penetration by adding a N, N-di methyl alkenoic acid amide

BUCKMAN LABS INC 17.10.79-US-085567

C03 E14 F09 P42 (E16) (18.11.80) B05d-01/18

Wood preservative compsn. comprises a mixt. of creosote and pentachlorophenol in an oil carrier with a N, N-dimethyl 18C alkenoic amide to improve penetrating properties. Suitable amides include those of linoleic, linolenic, oleic, acids or their mixts. Also suitable are tall oil acid amides (DMA).

Protects timber against attack by fungi and bacteria. The improved penetration increases the efficiency of the impregnating process. 17.10.79 as 085567 (4pp916)

BADI D22 20418 C/12 =US 4234-727  
Copper catalyst for tert. amine prepn. - is produced by heat-decomposing and reducing basic copper-aluminium carbonate  
BAS F AG 01.09.78-DT-838184  
A60 E19 (18.11.80) \*DT2838-184 C07c-85/06 +C07d-241/04  
C07d-295/02

An amine is N-alkylated by reacting with alcohol or carbonyl cpd. in the gas phase over a Cu catalyst under hydrogenating conditions. The reaction is carried out over a Cu catalyst which has been obtd. by thermal decomposition and redn. of basic copper aluminium carbonate.

The catalyst is pref. obtd. by precipitating a dilute or moderately conc. solns. of salts of Cu and Al with alkali metal carbonate at pH 8-10, moulding decomposing at 350-600°C, and reducing.

Process is simple, catalyst is cheap and yield is high. 22.8.79 as 068742 (5pp977)

See Also

D15 US 4234652

D25 GB 1580614



## D23: OILS; FATS; WAXES

**SULLIVAN** D23 49603 A/27 #GB 1580-664  
Steam refining vegetable and animal oils - with removal of metals and carotene(s) by acid and clay treatment  
SULLIVAN SYST INC 19.04.76-US-678404 (02.08.77-GB-032449)  
(03.12.80) \*US4089-880 C11b-03

Refining of crude vegetable oils contg. carotene and trace metals, is effected by treating crude oil contg. no phospholipids at 200-260°F., to remove trace metals and to reduce carotene to a level  $\leq 30$  ppm., deaerating the treated oil, and steam-stripping the obtd. oil under vacuum at 110-275°C. to remove free fatty acids and to bleach and deodorise the oil.

Pref. the oils are initially degummed to remove the phospholipids. Pref. the treatment further includes the sequential steps of reacting the trace metals in the oil with phosphonic and/or citric acid(s) and mixing with bleaching clay. The process provides an economical method for prodn. of refined glyceride oil having a low colour value and suitable for use in margarine or foods. 2.8.77 as 032449 (16pp924)

**LABOFINA SA** D23 27888 B/15 =GB 1580-683  
Hydrogenation catalyst for oils, esp. cooking oils - comprises nickel with specified amt. of absorbed basic nitrogen cpd.

LABOFINA SA 02.12.77-LU-078622  
(D13) (03.12.80) \*BE-872-476 B01j-23/74 C07c-05/02  
Catalyst, for selective hydrogenation of natural oils, comprises Ni catalyst other than Raney Ni carried on a support. The support has basic nitrogen cpd. absorbed in it and the catalyst contains 5-40 atoms of N per 100 atoms of Ni.

Pref. the N cpd. is selected from  $\text{NH}_2$ ,  $\text{CO}(\text{NH}_2)_2$ , hexamethylene-triamine and 4-22C aliphatic amines. Catalyst is used in amt. 0.01-0.75 wt.% of Ni based on wt. of oil present.

The polyunsaturated components of the oil are selectively hydrogenated and formation of satd. cpds. trans isomers and conjugated dienes is limited. 17.5.78 as 020157 (5pp977)

**HASEGAWA KK** D23 87383 C/49 ★J5 5136-247  
Unsaturated aliphatic carboxylic acid ester prepn. - by reacting octene diol with aliphatic carboxylic acid or deriv., used in perfumery  
HASEGAWA KK 09.04.79-JA-041998  
E17 (23.10.80) A231-01/23 C07c-69/02

Cis- or trans-5-octene-1,3-diol carboxylic acid esters of formula  $\text{C}_2\text{H}_5-\text{CH}=\text{CH}-\text{CH}_2-\text{CH}(\text{OR}^1)-\text{CH}_2-\text{CH}_2\text{OR}$  where one of R and  $\text{R}^1$  is H and the other except  $-\text{COR}^2$  where  $\text{R}^2$  is H, alkyl or alkenyl, where  $\text{R}^1$  is H while R is  $-\text{COCH}_3$ .

These cpds. are prepd. by reacting cis- or trans-5-octene-1,3-diol or its monoester of formula  $\text{C}_2\text{H}_5-\text{CH}=\text{CH}-\text{CH}_2-\text{CH}(\text{OH})-\text{CH}_2-\text{CH}_2\text{OR}^3$ , where  $\text{R}^3$  is H or  $-\text{COCH}_3$ , with a carboxylic acid or deriv. of formula  $(\text{R}^2\text{CO})_n\text{X}$ , where  $\text{R}^2$  is H, alkyl or alkenyl; X is  $-\text{OH}$ , halogen or O, and if X is  $-\text{OH}$  or halogen, n is 1, if X is O, n is 2.

These cpds. are used as aromatic principles in perfumery for long-lasting aroma. 9.4.79 as 041998. (15pp75)

**HASEGAWA KK** D23 87384 C/49 ★J5 5136-249  
Cis- or trans-octenoic acid cpds. - useful in long lasting perfume emulsions.

HASEGAWA KK 09.04.79-JA-041999  
E17 (23.10.80) A231-01/23 C07c-67/29 C07c-69/73  
Alkyl 3-hydroxy-cis- or -trans- or 3-alkylcarbonyloxy-cis- or -trans-5-octenoic acid cpds. of formula (I):  $\text{C}_2\text{H}_5-\text{CH}=\text{CH}-\text{CH}_2-(\text{CH}(\text{OR}^1)-\text{CH}_2-\text{COOR})$  (where R is H, alkyl or alkenyl;  $\text{R}^1$  is H or  $-\text{COR}^2$ , where  $\text{R}^2$  is H, alkyl or alkenyl) are novel.

Prepn. of (I) (where  $\text{R}^1 = \text{COR}^2$  and R = alkyl on alkenyl) comprises reacting 3-hydroxy-cis- or trans-5-octenoic acid alkyl cpd. of formula (II):  $\text{C}_2\text{H}_5-\text{CH}=\text{CH}-\text{CH}_2-\text{CH}(\text{OH})-\text{CH}_2-\text{COOR}$  with carboxylic acid of formula  $(\text{R}^2\text{CO})_n\text{X}$

where  $\text{R}^2$  is H, alkyl or alkenyl; X is  $-\text{OH}$ , halogen or O atom, provided that where X is  $-\text{OH}$  or halogen atom, n is 1, and where X is O atom, n is 2), or its functional deriv. 9.4.79 as 041999. (14pp75)

**JAPS** D23 25527 Y/15 =J8 0044-120  
Highly pure fatty acids, resin acids and sterols - recovered from tall oil soaps treated in thin layer evaporator

JAPAN SYNTHETIC RUBBER 22.09.75-JA-114492  
A11 F09 (10.11.80) \*DT2642-414 C11b-13

Soap is introduced into a wiper blade thin layer evaporator in which distance between blade ends and surrounding evaporator wall is 0-1 mm. Heating is effected to a temp. above m.pt. of soap. Water and low-boiling non-saponifiable products are removed by evapn.

Alkali is added to crude soap obtd. Saponification takes place with decompn. of esters of fatty acids, and resin acids with sterols and other alcohols. Desired acids are recovered after acid decompn. of saponification prod. and distn. Process can be modified to recover sterols. Before acid decompn and distn. saponification prod. is re-introduced into wiper blade thin layer evaporator and heated above m.pt. of soap to evaporate and separate sterols and non-saponifiable prod.

Tall oil skim soap treatment can be incorporated to black liquor processing installations of pulping plant. 22.9.75 as 114492, C11b-13/00 (10.11.80) JAPAN SYNTHETIC RUBBER (14pp) (J52039613)

**AKOR=★** D23 87947 C/49 ★SU-729-183  
Prodn. of citronellol for use as scent in perfumery - by hydrogenation of citral in aq. alcohol in presence of nickel-chromium catalyst with addn. of soda

AS KAZA ORGAN CATAL 24.08.76-SU-397640  
E17 (28.04.80) C07c-29/14 C07c-33/02

Citronellol (I), useful as aromatic agent in perfumery, is prepd. from citral by hydrogenating it at elevated temp. and pressure in the presence of nickel-chromium catalyst in alcohol with addn. of soda.

The process selectivity is increased giving final prod. in high yield and of improved purity by conducting reaction at 60-120°C and 1-80 atmos. in 3-6C iso-alkyl alcohol with addn of 6-9 wt. % soda (on catalyst) in aq. soln. using soda soln.: alcohol volume ratio of 1:10.

The yield of (I) is 96-97% and the prod. is 92-97% pure. It contains 2.0-3.5% 2,6-dimethyl-octanol by-prod. Sokolskii, D.V., Pak, A.M., Konuspaev, S.R. et al. Bul. 15/25.4.80. 24.8.76. as 397640 (3pp938)

**DNCH=★** D23 87996 C/49 ★SU-729-237  
Oily micelle distn. in oil and fats industry - by two-stage process with collection, compression and recycling of part of solvent vapour from first stage

DNEPR CHEM TECH 06.12.76-SU-427489  
(25.04.80) C11b-01/10

The process is used for distilling oily micelles in the oils and fats industry. It involves a two-stage method with collection, compression and recycling of solvent vapour. In order to intensify the process, to improve oil quality and to reduce vapour expenditure, 10-40% of the total vapour is collected in the first stage of distn., the compressed vapour is reheated to 100-120°C and recycled to the same stage. This ensures uniform distribution of vapour in the boiling micelle and produces a vapour-liq. mixt. Distn. of the latter is carried out in an ascending flow.

In the process, solvent vapour is compressed to 1.05-1.45 kg/cm<sup>2</sup>.

Zadorskii, V.M., Shkurupii, G.I., Kozhemyakin, G.E. et al. Bul. 15/25.4.80. 6.12.76. as 427489 (4pp932)



INFL ★ D23 88249 C/49 ★US 4234-518  
Methylated cyclohexenyl-alkenone cpds. - for enhancing organoleptic properties of perfumes, colognes and foodstuffs  
INT FLAVORS & FRAGR INC 07.06.79-US-046390 (10.08.78-US-932649)  
E15 (18.11.80) C07c-45

A mixt. of 3-methyl-5-(2, 6, 6-trimethyl-1-and-2-cyclohexen-1-yl)-3-penten-2-one, 3-methyl-5-(2, 6, 6-trimethyl-1-and-2-cyclohexen-1-yl)-4-penten-2-one, 6-(2, 6, 6-trimethyl-1-and-2-cyclohexen-1-yl)-4-hexen-3-one and 6-(2, 6, 6-trimethyl-1-and-2-cyclohexen-1-yl)-5-hexen-3-one is prepd. by mixing 2, 6, 6-trimethyl-1-and-2-cyclohexene acetaldehyde, MeCOEt and Zn acetate dihydrate, heating the mixt. at 190°C for 8 hrs. and distilling the prod. at 116-121°C and 1.3 mm Hg pressure.

A mixt. of 4-(4-methyl-3-cyclohexen-1-yl)-3-buten-2-one and 4-methyl-3-cyclohex-1-ylidene-2-butanone is obtd. by reacting 4-methyl-4-cyclohexene-1-aldehyde with ace-

tone in the presence of Zn acetate dihydrate at 180°C for 7 hrs. and distilling the prod. at 93-104°C and 2 mm Hg pressure. A mixt. of 3-methyl-4-(4-methyl-3-cyclohexen-1-yl)-3-buten-2-one and 1-(4-methyl-3-cyclohexen-1-yl)-1-penten-3-one is prepd. by reacting 4-methyl-3-cyclohexen-1-aldehyde with MeCOEt in the presence of Zn acetate dihydrate at 150°C for 10 hrs. and distilling the prod. at 119-125°C and 3 mm Hg pressure. The cis and trans isomers of 4-(4-methyl-3-cyclohexen-1-yl)-3-buten-2-one are novel cpds.

The organoleptic properties of perfumes, colognes, perfumed articles and foodstuffs can be augmented or enhanced by addn. of mixts. 7.6.79 as 046390 Div.ex 4169109 (31pp558)

See Also

D13 US 4234463

D16 GB 1580843

## D24: SOAP; SOAP DETERGENTS

BLAC- ★ D24 87006 C/49 ★GB 2047-731  
Heavy metal soap prodn. from glyceride(s) - by reaction with metal (hydr)oxide in presence of water

BLACHFORD H L LTD 29.03.79-CA-324476

A60 E12 G02 (03.12.80) C11d-13

Metallic soaps of (un)satd. linear or branched opt. -OH substd. 6-22C carboxylic acids, pourable when molten, are prepd. by reacting stoichiometric amts. of cadmium, lead or zinc oxide or cobalt, manganese or zinc hydroxide and a glyceride of formula  $H_2C(OR_1)CH(OR_2)CH_2(OR_3)$ , where  $R_1$ ,  $R_2$  and  $R_3$  are independently H or linear or branched (un)satd. opt. -OH substd. 6-22C acyl,  $\geq 1$  being acyl, in the presence of water.

The mixt. is agitated at a temp. above the m.pt. of the soap, the amt. of water present being sufficient to dissolve the by-prod. glycerine. When the reaction is com-

plete, the mixt. is allowed to separate into an aq. layer and a molten soap layer, free of metal oxide or hydroxide, carboxylic acid or glyceride, under sufficient pressure for the aq. phase to be quiescent. The soap is then recovered.

The prods. have a wide range of applications e.g. water proofing as thickening or suspending agents, in cosmetics, in powder metallurgy, as antifoaming agents, siccatives, etc. They are prepd. directly from glycerides without intermediate sodium salt formation. Filtering, washing and drying of the prod. are not required. 21.3.80 as 009689 (13pp955)

## D25: OTHER DETERGENTS

UNIL ★ D25 86374 C/49 ★BE-883-414  
Conc., aq. liq. fabric softeners - contg. water-soluble polymers to provide easy dispersibility in water

UNILEVER NV 21.05.79-GB-017532

A87 E19 F06 (21.11.80) D06m

The softener comprises (a) 25-75(30-70) esp. 40-70% of an aq. medium, (b) 15-60(20-50) esp. 20-45% of a cationic softening agent, (c) 0.5-40 (1-30) esp. 4-25% of a water-soluble polymer.

(C) has a viscosity of 50 cP or less (measured using a 20% aq. soln. at 25°C, and 110 S<sup>-1</sup> in a Haake viscosimeter), a vapour pressure (measured using an aq. soln. at 20°C) equal to or less than the vapour pressure of an aq. 2% soln. of polyethylene glycol of mol. wt. 6000, i.e. mol. wt. of at least 400 (pref. a mol. wt. of at least 4000).

The presence of (c) renders the compsns. easily dispersible in water. The compsns. are stable and pourable and contain high concns. of (b). The addn. of solvents is not required, but up to about 20% solvent can be incorporated. 21.5.80 as 883414 (21pp004)

SHER- ★ D25 86394 C/49 ★BE-884-057  
Foam stabiliser for foam contg. alkyl benzene sulphonate(s) - alkoxyalkyl di (hydroxyalkyl) amine oxide(s), used in washing powders etc.

SHEREX CHEM INC 27.06.79-US-052665

E15 (E14) (16.10.80) C11d

The cpds. have the formula in which  $R_1$  is 4-11C alkyl,  $R_2$  is 2-4C alkylene and  $R_3$  and  $R_4$  are each 1-4C hydroxyalkyl. They are used in compsns. which foam which may be in

liq. powder or gel form.

The cpds. are used in clothes and dish washing compsns; both foams, hair rinses etc. They are relatively inexpensive, are very effective and are less irritating to the skin and the eyes than alkanolamide stabilisers.

Pref. cpds. are those in which  $R_3$  and  $R_4$  are each 2-4 C hydroxyalkyl, esp. both hydroxyethyl,  $R_1$  is 8-11C and  $R_2$  is propylene. 27.6.80 as 884057 (29pp597)

ANTO/ ★ D25 C/49 ★CS 7807-330  
Active additive for detergents  
ANTOS K 10.11.78-CS-007330  
(29.08.80) C11d-03/38

FMCC D25 11169 V/06 = DS 2339-117  
Detergent compsns - contg non-burning chlorinated dry bleach  
FMC CORP 04.08.72-US-277888  
E12 + P34 (27.11.80) \*US3789-000 D061-03/06

Bleaching, sterilising, disinfecting and detergent compsns are prepd. in industrial quantities using as chlorinated, dry bleaching agent Sodium dichloroisocyanurate dihydrate or a mixt of the dihydrate and sodium dichloroisocyanurate which contains less water than the dihydrate but still more than 11 wt% hydrate water. The bleaching agent can be stored in large quantities and mixed with other ingredients without danger as it is much less likely to decompose or ignite and does not tend to accumulate an electric charge. 2.8.73 as 339117 (8pp068)



**HENK ★ D25 86448 C/49 ★DT 2918-363**  
 Fabric-softening detergent powders - contg. nonionic and zwitterionic surfactant and quat. ammonium fabric softener  
 HENKEL KG AUF AKTIEN 07.05.79-DT-918363  
 A97 E19 F06 (27.11.80) C11d-01/94

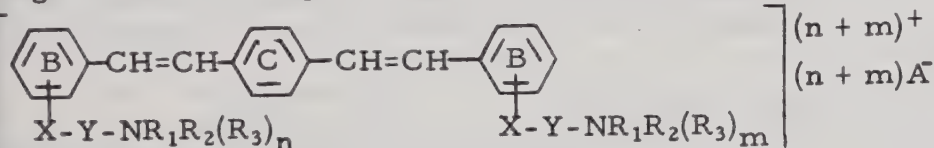
Washing powder compsns. with a fabric-softening action comprise the following components: (a) 5-20 wt% of  $\geq 1$  ethoxylated alcohol of formula (I):  $\text{RO}(\text{CH}_2\text{CH}_2\text{O})_n\text{H}$  (where R is  $\text{R}_1\text{R}_2\text{CHCH}_2$  and  $n=2-20$ , or R is 8-15C alkylaryl and  $n=3-15$ ;  $\text{R}_1$  is 8-20C straight-chain alkyl or alkenyl;  $\text{R}_2$  is H or 1-4C alkyl); (b) 1-10wt% of a 12-18C fatty acid ethanamide; (c) 1-10wt% of a zwitterionic cpd. of formula (II):  $\text{R}_3\text{R}_4\text{R}_5\text{N}-\text{R}_6-\text{X}$  (where  $\text{R}_3$  is a 10-22C aliphatic, cycloaliphatic or alkylaromatic gp., pref. 12-22C n alkyl;  $\text{R}_4$  is 1-4C alkyl, 2-4C hydroxyalkyl or  $(\text{CH}_2\text{CH}_2\text{O})_m\text{H}$ , where  $m=2-5$ ;  $\text{R}_5$  is  $\text{R}_4$ , phenyl, benzyl or tolyl;  $\text{R}_6$  is 2-4C alkylene or hydroxyalkylene; X is  $\text{COO}^-$ ;  $\text{OSO}_3^-$  or  $\text{SO}_3^-$ ); (d) 2-10 wt% of a fabric-softening quat. ammonium salt selected from derivs. of ammonia and/or imidazoline, pref. with 2 long-chain aliphatic gps; (e) 50-91 wt% of conventional washing-powder ingredients.

The compsns. are esp suitable for hand- and machine-washing of wool and/or synthetic textiles. They have a good cleaning action, impart a pleasant feel and antistatic properties, and produce a dense foam without excessive foaming in washing machines. 7.5.79 as 918363(19pp367)

**CIBA ★ D25 86707 C/49 ★EP --19-078**  
 Di:styryl-benzene derivs. contg. amine or ammonium functions - useful as optical brighteners, esp. together with cationic fabric conditioners

CIBA GEIGY AG 26.06.79-CH-005951 (11.04.79-CH-003479)  
 A60 E24 F06 (E23 F09) (26.11.80) C07c-93/06 C07c-101/12 C07c-103/44 C07c-143/78 C07c-149/24 D061-03/12

D/S: E(BE, CH, DT, FL, FR, GB, IT, NL, OE, SW)  
 Distyrylbenzene derivs. of formula (I) are new. (where rings B and C are opt. substd. by non-chromophoric gps.;



each X is independently  $\text{COO}$  or  $\text{CON}(\text{R}_4)$  in the ortho posn. a direct bond, O, S, O-R- $\text{CON}(\text{R}_4)$ ,  $\text{SO}_2\text{N}(\text{R}_4)$ , O-R- $\text{COO}$  or  $\text{OCO}$ ; each Y is independently 1-20C alkylene each  $\text{R}_1$  and  $\text{R}_2$  is independently opt. substd. 1-8C alkyl or 3-4C alkenyl, and each  $\text{R}_3$  is independently H, opt. substd. 1-4C alkyl or 3-4C alkenyl, or  $\text{NR}_1\text{R}_2$  is a heterocyclic ring or  $\text{NR}_1\text{R}_2\text{R}_3$  is a pyridine or picoline ring;  $\text{R}_4$  is H or opt. substd. 1-6C alkyl; R is 1-3C alkylene; A- is a colourless anion; n and m are 0 or 1).

8.4.80 as 101864 (64pp367)

(G) ISR:-

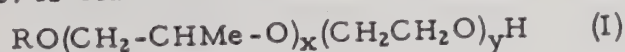
**BADI ★ D25 86732 C/49 ★EP --19-173**  
 Low-foaming biodegradable nonionic surfactants - comprising alkoxyated alcohol(s) with block polymerised oxypropylene and oxyethylene units

BASF AG 10.05.79-DT-918826

A97 E17 (A25) (26.11.80) B01d-19/04 C11d-01/72

D/S: E(BE, CH, DT, FL, FR, GB, IT, LU, NL, OE, SW).

The use of alkoxyated alcohols of formula (I) as low-foaming biodegradable surfactant additives in detergent compsns. is claimed:



(where R is 8-18C alkyl, esp. 9/11C or 13/15C n-alkyl;  $x=2-4.5$ ; and  $y=2-5$ ).

(I) are esp. suitable for use in detergents for automatic dishwashing machines. They have good cleaning and rinsing action and produce less foam than prior art alkoxyated alcohols (cf. GB 1097491 and DT 1645011).

5.5.80. as 80102419 (15pp367).

(G) ISR: FR2247532; DT2724349; DT2810703; FR2366356; JS2677700; FR1508818.

**PROC ★ D25 86789 C/49 ★EP --19-315**  
 Conc. builder free liq. detergent compsn. - contg. anionic and nonionic surfactants, fatty acid and phase regulant  
 PROCTER & GAMBLE CO 16.05.79-GB-017133  
 A97 E19 (D16) (26.11.80) C11d-01/83 C11d-03/38  
 D/S: E(BE, DT, FR, GB, IT, NL)

Highly coc. homogeneous detergent comprises 35-75 (45-60) wt. % of a mixt. contg. (a) a sulphonate or sulphate as anionic surfactant, (b) an ethoxylated nonionic surfactant and (c) 8-20% 10-22C fatty acid, plus a phase regulant and water. The wt. ratio (a):(b) is 10-1:1 esp. 4-1.5:1, and (a+b) is together > (c), esp. 2-5 times (c). The compsn. has pH 6-7.5 at 20°C.

Esp. (a) is a 9-15C alkylbenzenesulphonate neutralised with mono-, di- or triethanolamine and (c) pref. has 16-18C and contains  $\geq 30$  wt. % unsatd. acids. (b) esp. has HLB 9-15 and is particularly a condensate of a 10-15C fatty alcohol with 4-10 moles ethylene oxide. Opt. the compsn. contains 0.01-0.2 wt. % dimethylpolysiloxane as suds regulator.

The compsns. are builder-free replacements for heavy-duty detergents for use at medium-to-low ( $> 60^\circ\text{C}$ ) laundry temps. They have excellent cleaning powder, esp. on oily and bleach-sensitive soils, and have a mildly acid to neutral pH.

24.4.80 as 200373 (20pp1251)

(E) ISR: FR2343805; DT2819975; DT2304060; US3663445; DT2304098; OE-316715; GB1527141.

**UNIL ★ D25 86827 C/49 ★EP --19-413**  
 Coloured speckled detergent for use in washing powder - prepd. by solidifying melt of surfactant and dye, then milling and classifying  
 UNILEVER LTD 09.05.79-GB-015957  
 A97 (26.11.80) C11d-01/66 C11d-03/40 C11d-17/06  
 D/S: E(BE, CH, DT, FL, FR, GB, NL, OE, SW)

Coloured speckles for incorporation into washing powders are made by solidifying a melt made of a surfactant (I) (solid at room temp.) and colour, then milling the solid and sepg. the resulting speckles from extraneous material by elutriation.

(I) is pref. nonionic, specifically tallow alcohol condensed with 25 moles ethylene oxide, and contains 0.01-0.2% colour. The melt is pref. solidified by spraying onto a rotating drum and then milled to max. particle dia. 1500  $\mu$ .

Non-segregating speckles can be prod. in a wide range of sizes and are entirely phosphate-free.

7.5.80 as 301488 (12pp1251)

(E) ISR: US4162228; US4082682; FR2318924;

**UNIL ★ D25 86853 C/49 ★EP --19-470**  
 Nonionic surfactant compsn. contg. charge transfer agent - esp. alkali iodide, to prevent autoxidation  
 UNILEVER LTD 17.05.79-GB-017226  
 A97 E34 (26.11.80) C11d-01/66 C11d-03/24  
 Full Patentees: Unilever Ltd.; Unilever NV.

D/S: E(DT, FR, GB, IT, OE, SW)

(A) Compsns. consist of a nonionic surfactant (I) and a small amt. of charge transfer agent (II), esp. NaI or KI. Pref. (I) is a pri. or sec. 7-24C alcohol ethoxylated with 15-20 moles ethylene oxide.

(B) Autoxidn. during spray-drying of aq. detergent slurries contg.  $\geq 3$  wt. % (I) is inhibited by incorporating 0.05-2 (0.1-0.5) wt. % of (II) (all figs. on fully formulated powder prod.). Opt. only a portion (esp. 3-12 wt. %) of (I) is incorporated by spray-drying.

(II) effectively prevent autoxidation during spray-drying use and storage.

16.5.80 as 301601 (17pp1251)

(E) ISR: DT1617115; DT2747602.



**UNIL ★ D25 86862 C/49 ★EP--19-484**  
 Nonionic surfactant, esp. spray dried detergent, compsn. - contg. copolymer of di:cyclopentadiene and cresol as antioxidant  
 UNILEVER LTD 21.05.79-GB-017636  
 A97 E14 (A12) (26.11.80) C11d-01/66 C11d-03/37 C11d-17  
 D/S: E(DT,FR,GB,IT,OE,SW).  
 Compsn. esp. a spray-dried detergent powder, consists of a nonionic surfactant (I) plus as antioxidant a small amt. of a copolymer (II) of dicyclopentadiene with a mixt. of 2- and 3-methylphenols. Esp. the compsn. contains 2-50 wt.% 6-24C prim.or sec. alcohol condensed with 3-25 moles ethylene oxide plus 0.001-0.5 (0.02-0.1) wt.% (II). The compsn. can also contain 10-60 wt.% phosphate or 10-30 wt.% nonphosphate builder and is formed by spray drying an aq. slurry.  
 (II) efficiently inhibits oxidn. of detergent slurries during processing at low concn.; is stable to hot alkaline media and does not cause discolouration. It is easily soluble in (I), nontoxic, heat-stable and of low volatility.  
 20.5.80 as 301650 (16pp1251).  
 (E) ISR: US3682849; DT2747602.

**DOWC D25 79793 Y/45 =GB 1580-330**  
 Detergent compsn. for textiles, esp. of polyester - contains a hydroxybutyl methylcellulose and has antiredeposition properties and gives soil:resistant properties to the textile (NL 25.10.77)  
 DOW CHEMICAL CO 07.03.77-US-775136 (23.04.76-US-679536)  
 A97 (A11 A23) (03.12.80) \*DT2717-330 C11d-01/72 C11d-03/37 D06m-15/04 + C11d-10/02  
 Detergent compsn. for washing synthetic textile fabrics, comprises (a) 7-70 wt.% of a nonionic surfactant, (b) 5-30 wt.% of Na silicate having a SiO<sub>2</sub>/Na<sub>2</sub>O ratio of 2-3/1, (c) 0-80 wt.% of a builder salt other than Na silicate, and (d) 0.05-5 wt.% of a hydroxy-butyl methylcellulose having a DS of 1.5-2.5 methoxyl gps., a Ms of 0.01-0.8 hydroxy-butyl gps., and a viscosity of 10-400 cPs in 2% aq. soln. at 20°C. The percentage of each component is based on the total dry wt. of compsn.  
 The nonionic surfactant is the condensn. prod. of 5-20 moles of ethylene oxide with 1 mole of an 8-22C alkanol, an 8-18C alkyl phenol, an 8-20C alkanolic acid amide or propylene glycol. Pref. the builder is Na phosphate. The compsn. overcomes the deficiencies of prior art formulations. 22.4.77 as 016917 (11pp924)

**PROC D25 37572 A/21 =GB 1580-456**  
 Detergent compsn.  
 PROCTER & GAMBLE CO 13.08.76-GB-033787  
 E19 (03.12.80) \*J53041-312 + C11d-01/02 C11d-03/06  
 Built detergent compsn. comprises by wt. (a) 1-70% anionic and/or zwitterionic surfactant; (b) 5-50% mixt. of water-soluble ortho and pyrophosphate salts, in wt. ratio 9:2 to 3:7; and (c) 0.5-25% of  $\geq 1$  quat. ammonium cpd. of formula (R<sub>1</sub>R<sub>2</sub>R<sub>3</sub>R<sub>4</sub>N)<sup>+</sup>Y<sup>-</sup> (I).  
 In the formulae,  $\geq 1$  of R<sub>1-4</sub> is an organic radical contg. 16-22C aliphatic radical, or alkyl, phenyl or alkylbenzyl radical having 10-16C alkyl, remaining gp(s). being 1-4C alkyl, 2-4C hydroxyalkyl or cyclic structure in which the N atom forms part of the ring; and Y is an anionic radical.  
 Compsn. has simultaneous antistatic, softening and cleaning effects. 12.8.77 (14pp936)

**FMCC D25 68934 A/39 =GB 1580-614**  
 Crystalline percarboxylic acids prepn. from carboxylic acids - by hydrogen peroxide oxidn. in presence of water immiscible solvent  
 FMC CORP 28.03.77-US-782204  
 E19 F06 (D22) (03.12.80) \*BE-865-205 C07c-179/10  
 Prod. of a peroxy-carboxylic acid in crystallised form comprises oxidising in an aq. phase of a carboxylic acid with an excess of H<sub>2</sub>O<sub>2</sub> in the presence of sufficient strong acid catalyst to tie up the by-prod. water, dispersing throughout the aq. phase before completion of the reaction, an inert, water-immiscible solvent for the peroxy-carboxylic acid and recovering the desired prod.  
 Prods. are useful as oxidising, disinfecting, and bleaching agents and as catalysts. They are suitable for textile and home laundry applications. 23.3.78 as 011556 (10pp963)

**WITC D25 88297 R/47 #NL-165-497**  
 Stable liquid detergent composition contg - enzymes  
 WITCO CHEM CORP 27.05.70-BE-751007 (01.05.70-NL-006468)  
 (17.11.80) \*BE-751-007 C11d-03/38 + C11d-01/22  
 Liq. washing agents (I) are prepd. by mixing A) 0.001-5 wt.% of one or more active proteolytic-, amylolytic- and/or lipolytic enzymes; b) min. 88 wt.% of an almost 100% pure mixt. of detergents and c) max 7 wt.% water. Constituent B consists of 1) 30-90 wt.% ethanolamine salts of alkylbenzene- and/or alkyltoluenesulphonic acids (8-18C) alkyl; prepd. by neutralising the sulphonic acids 'in situ' in the presence of 2) 5-35 wt.% non-ionogenic, usually liq. - and water-soluble surface-active ethoxylated- and/or propoxylated ethers of mono-valent (8-18C) alkanols and/or alkylphenols with 1-2 alkyl (5-18C) total alkyl); 5-35 wt.% fatty acid amides of monoethanolamine, diethanolamine and/or isopropanolamine (10-16C in fatty acid).  
 (I) are washing agents with a lower pH than the customary agents, which improves the enzyme activity. They may be used as soaking- or pre-wash agents for stained clothing. They may also be used in washing-up agents to remove organic stains on dinner- or tea sets and utensils. (I) may also be used as handsprays or aerosols. 1.5.70 as 006468 (6pp279)

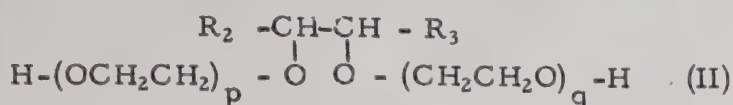
**REZN/ ★ D25 87958 C/49 ★SU-729-195**  
 Prod. of surface active agents - by reacting maleic anhydride with alcohol and/or alkylol-amide and prod. sulphonation  
 REZNIKOV I G 19.01.76-SU-314782  
 E17 (27.04.80) C07c-143/12 C11d-01/12  
 Surface active agents, useful in synthetic detergent compsn. mfr. are prepd. by reacting maleic anhydride with hydroxy-gp. contg. cpd. at elevated temp. with subsequent prod. sulphonation.  
 The quality of the final prod. is increased by reacting maleic anhydride with unsatd. alcohol and/or alkylol-amide based on vegetable oil prod. waste or a mixt. of above oils with satd. alcohols and/or alkylolamides. The sulphonation of the intermediate prods. is conducted at 60-90°C using alkali metal sulphite.  
 Reznikov, I. E., Berel, Z. P., Kudryashov, A. I. et al.  
 Bul. 15/25.4.80. 19.1.76. as 314782 (4pp938)

**JOSE/ ★ D25 C/49 ★SW 7903-310**  
 Washing compsn. - comprising mixt. of organic solvents, inorganic materials, emulsifiers and solution aids  
 JOSEFSSONT 17.04.79-SW-003310  
 (17.11.80) C11d-03/24  
 Washing compsn. comprises a mixt. of organic solvents, inorganic materials, emulsifiers and soln. aids. 17.4.79 as 003310 (-pp903).

**ALKU D25 06032 C/04 #US 4234-442**  
 Detergent contg. alkali carbonate and separate acid component - which dissolves before the alkali and forms soluble magnesium, and calcium salts  
 AKZO NV 14.07.78-GB-029955 (14.07.78-US-924551)  
 A97 E34 (18.11.80) \*GB2025-450 C11d-07/08 C11d-17  
 Sachet has two compartments contg. detergent comprising (a) 5-65 wt.% alkali carbonate, (b) 5-30 wt.%  $\geq 1$  solid acid of pK, value 2.8-4.8 which forms water-soluble Ca salts or Mg salts or complexes, (c) the balance of the compsn. consists of usual solid detergents constituents, surfactants and opt. alkaline builders. The total amt. of alkaline material present is in stoichiometric excess to that of the acid. The acid component is present in one sachet compartment, the alkaline component is in the other. The acid contents are released into the water before the alkaline.  
 The alkaline sachet compartment consist entirely of (co)polymers of methacrylic acid (esters) or partly hydroxypropylmethyl cellulose. The material becomes permeable to water or disintegrates only after  $\geq 2$  and  $\leq 10$  mins. The acid compartment has  $\geq 1$  seam contg. polyethylene glycol and a thermoplastic resin which opens in water.  
 14.7.78 as 924551 (7pp937)



**HENK** D25 05614 C/04 = US 4234-444  
 Nonionic surfactant detergent compsn. - contg. ethoxylated fatty alcohol mixed with ethoxylated internal vicinal alkane-diol to prevent gelling on dilution  
 HENKEL KG AUF AKTIEN 06.07.78-DT-829697  
 A97 E19 (A25) (18.11.80) \*DT2829-697 C11d-01/72  
 Detergent compsn. comprises (a) 40-60 wt. % cpds. of formula  $R_1-O-(CH_2CH_2O)_n-H$  (I); and (b) 60-40 wt. % cpd. of formula (II).



In the formulae,  $R_1$  is opt. satd. radical of 6-18C fatty alcohol;  $n$  is integer 4-15;  $R_2$  and  $R_3$  are each 1-17C alkyl, total no. of C atoms in  $R_2$  and  $R_3$  being 8-18; and  $p$  and  $q$  are each 0-15, sum  $p + q$  being 4-15.

Pref. the difference between  $n$  in (I) and sum  $p + q$  in (II) is  $\leq 2$ . Compsn. has improved viscosity characteristics. 25.6.79 as 051542 (4pp936)

**GENA** D25 77013 C/43 = US 4234-464  
 Detergent bar binder compsns. - contg. fatty acid or alcohol, and an alkylamide

GAF CORP 09.04.79-US-028192  
 E17 (E16) (18.11.80) \*WP8002-154 C11d-01/02 C11d-07/32 C11d-17

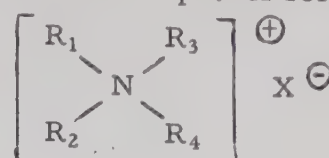
Detergent bar binder compsn. (I) comprises (i) 70-90 wt. % fatty acid or alcohol with an iodine no.  $< 20$  and m.pt.  $\geq 50^\circ\text{C}$  selected from 12-22C fatty acids or alcohols or fatty acid esters, (ii) 2-30 wt. % of an alkyl amide of formula  $R_1-C(O)-NHR_2$ ,  $R_1$  is 10-22C straight chain alkyl and  $R_2$  is H or a 1-3C alkyl. Pref. (I) also contains 5-50 wt. % tri-glyceride of animal or vegetable origin with a titre  $> 50$  and iodine no.  $< 20$ .

(I) results in a syndet bar of similar physical properties to those of soap, ie. appearance, texture, smooth feel and plasticity indistinguishable from a soap bar. 9.4.79 as 028192 (6pp918)

**IOY** D25 75549 B/42 = US 4234-465  
 Textile detergent compsn. having softening activity - contains alkaline earth metal anionic surfactant salt and quat. ammonium cpd.

LION FAT & OIL KK 30.03.78-JA-037041  
 E16 F06 (18.11.80) \*DT2911-585 C11d-01/62 + C11d-03/26 C11d-07/32

Detergent compsn. (II) comprises (i) 5 to 40 wt. %  $\geq 1$  of Mg salt of anionic surfactant with a sulphonic acid gp. of sulphuric acid ester gp. (ii) 2 to 7.5 wt. %  $\geq 1$  quaternary ammonium cpd. of formula (I).



$R_1$  and  $R_2$  are each 10-22C alkyl or alkenyl.  $R_3$  and  $R_4$  are each 1-3C alkyl gp.  $X$  is Cl.

Pref. (II) also contains 40-80 wt. % conventional detergent ingredients, i.e. nonionic surfactants amphoteric surfactants, (in)organic builders, organic chelating agents, anti-caking agents, optical brighteners, perfumes, colourants, suds control agents and redeposition preventers.

(II) has fabric softening effect without a decrease in the cleansing effect. 27.3.79 as 024204 (5pp918)

**PROC** ★ D25 88296 C/49 ★ US 4234-627  
 Granular laundry pre-soaking-washing compsns. - consisting of surfactant and friable microcapsules contg. fabric conditioning agent esp. perfume

PROCTER & GAMBLE CO 04.02.77-US-765510 (28.11.75-US-636382)

A97 P42 (18.11.80) B05d-03/12 D06m-13/16  
 Granular laundry presoaking/washing compsn. consists of (by wt.) (a) 3-20% of a granular fabric treatment mixt.; and (b) 5-90% of a presoaking/washing adjuvant (I). Fabric treatment mixt. consists of: (i)  $H_2O$ -insoluble friable microcapsules (5-500  $\mu$ ) each consisting of a liq. core contg. a fabric conditioning agent (II), and a solid, thin polymer shell of average thickness 0.1-50  $\mu$ ; (ii)  $H_2O$ -insoluble fabric substantive capsule transfer agent (iii) of m.pt. 40-150° which surrounds each microcapsule. Wt. ratio microcapsules:(III) within each granule of mixt. (a) is 0.002-2000:1. (I) is an  $H_2O$ -soluble deterative surfactant and/or detergency builder.

Compsn. efficiently delivers effective amts. of fabric conditioning agents (esp. volatile materials such as perfumes) to fabrics during the presoak or wash stage of the home laundering process. 4.2.77 as 765510 (9pp478)







- \* AAGR= 22.08.77 ARMN AGRIC MECHAN D14 \*SU -729-094  
Pelleting press for animal feedstuff - 87886C/49
- ABBO 29.03.79 ABBOTT LABORATORIES B03 D16 =GB 2047-688  
Fortimicin AN - 65926C/37
- \* ADAM/ 10.02.78 ADAM M D13 \*CS 7800-859  
Ready foods conservation method and appts. - C/49
- AIRP 20.09.67 AIR PRODUCTS & CHEM INC D14 #NL -165-544  
Cryogenic flash freezing tomatoes and fruit - 42761W/26
- AJIN 22.11.71 AJINOMOTO KK D21 E11 =J8 0044-045  
Toothpaste compsns - compsns - 72956U/48
- AJIN 16.08.73 AJINOMOTO KK B05 D16 E19 =J8 0043-760  
Amino acids cultivation using carbon dioxide as carbon source - 36337W/22
- AJIN 03.04.79 AJINOMOTO KK B05 D16 =J5 5135-595  
Di:peptide prodn. in presence of immobilised protease - 73469C/42
- AJIN 10.04.79 AJINOMOTO CO INC B05 D13 E14 =GB 2047-711  
Alpha-L-aspartyl-L-phenylalanine ester sweetening agents purificn. - 77325C/44
- \* AJIN 10.04.79 AJINOMOTO KK B02 D16 \*J5 5135-597  
Amoxicillin prodn. - 87208C/49
- AJIN 10.04.79 AJINOMOTO KK B05 D13 E14 =J5 5136-257  
Alpha-L-aspartyl-L-phenylalanine ester sweetening agents purificn. - 77325C/44
- \* AKOR= 24.08.76 AS KAZA ORGAN CATAL D23 E17 \*SU -729-183  
Prodn. of citronellol for use as scent in perfumery - 87947C/49
- ALFA 07.06.67 ALFA-LAVAL AB D13 =DS 1767-619  
Margarine production system - 09557R/07
- ALKU 14.07.78 AKZO NV A97 D25 E34 #US 4234-442  
Detergent contg. alkali carbonate and separate acid component - 06032C/04
- \* AMAN 22.12.78 AMANO PHARM KK D16 \*J5 5085-398  
Determn. of coenzyme activity immobilised on water-insoluble carrier - 87072C/49
- \* AMCY 30.03.78 AMERICAN CYANAMID CO B03 D16 \*US 4234-717  
Antibiotics BM 782 alpha 1, 2 and 1a - 88333C/49
- ANIS 12.09.75 ANIC SPA A97 B07 C03 D15 (D16 D22) =US 4234-652  
Occlusion of substance into microfibrinous structures - 18181Y/11
- \* ANTO/ 10.11.78 ANTOS K D25 \*CS 7807-330  
Active additive for detergents - C/49
- \* ARAY/ 16.03.79 ARAYA F D13 \*BR 8001-591  
Modifying colour of fruit skins - C/49
- ASAF 28.02.79 ASAHI DOW KK C03 D15 =GB 2047-565  
Photochemical destruction of pollutants and organisms - 66398C/38
- ASAH 15.02.75 ASAHI KASEI KOGYO A88 D15 F01 J01 =US 4234-431  
Hollow synthetic fibres - 67300X/36
- ASAH 16.11.77 ASAHI KASEI KOGYO D13 =US 4234-619  
Egg powder with reduced cholesterol and fat content - 53262B/29
- \* ASEL= 05.07.77 AS USSR ELEMENT ORG A11 B04 D16 (A96) \*SU -729-197  
Crosslinked chitosan copolymer carrier for enzyme immobilisation - 87960C/49
- ASTR 04.04.77 ASTRA CHEMICAL PROD A14 C03 D14 (A97) =US 4234-565  
Acrylic polymers with pH dependent solubility - 72730A/41
- ATLS 30.04.68 ATLANTIC RESEARCH CORP B04 D16 #US 4234-516  
Isohumulone by isomerisation of humulone - 35305F/00
- \* AUFF/ 28.12.78 AUFFRET J D14 \*FR 2449-584  
Semi-trailer tanker to transport bulk fluids - 86929C/49
- \* AUGU/ 03.05.77 AUGUSTIN J D16 \*CS 7702-869  
Alpha-Amylase enzyme prodn. - C/49
- \* AUGU/ 19.07.77 AUGUSTIN J D16 \*CS 7704-770  
Alpha-Amylase enzyme prodn. - C/49
- \* AUTE= 26.04.77 AS UKR TEC THERM PH D13 J04 \*SU -724-183  
Granulation of multicomponent powders - 87740C/49
- AUTO- 12.05.76 AUTOTROL CORP D15 =GB 1580-395  
Treating aqueous effluent by the activated sludge process - 82885Y/47
- BADI 29.08.75 BASF WYANDOTTE CORP D15 E36 J03 =CA 1089-797  
Electrolysis appts., partic for recovery of mercury from solns. - 00031Y/01
- BADI 15.05.76 BASF AG A14 D21 (A96) =GB 1580-745  
Copolymer of methyl methacrylate, alkyl acrylate, (meth)acrylic acid - 88350Y/50
- BADI 06.08.76 BASF AG A41 B05 D13 E17 =GB 1580-665  
Sugar alcohol prepn. from aldonic acid lactone(s) - 10301A/06
- BADI 10.03.77 BASF AG D25 E13 =OE 7801-719  
Melamine ether and ester deriv. antifoaming agents - 58882A/33
- BADI 02.07.77 BASF AG A97 C03 D13 =EP G000-160  
Feed pellet prepn. from feed flours - 02298B/02
- BADI 01.09.78 BASF AG A60 D22 E19 =US 4234-727  
Copper catalyst for tert. amine prepn. - 20418C/12
- BADI 10.05.79 BASF AG A97 D25 E17 (A25) =DT 2918-826  
Low-foaming biodegradable nonionic surfactants - 86732C/49
- BADI 10.05.79 BASF AG A97 D25 E17 (A25) \*EP --19-173  
Low-foaming biodegradable nonionic surfactants - 86732C/49
- BADI 19.05.79 BASF AG D15 =EP --19-175  
Dewatering of sludge - 84695C/48
- BADI 19.05.79 BASF AG D15 =EP --19-176  
Dewatering of clarifier sludge - 84687C/48
- \* BAKP 20.08.76 BAKER PERKINS HOLD D11 \*GB 1580-442  
Forced cooling of biscuits subsequent to baking - 86967C/49
- \* BAKS/ 21.06.78 BAKSHT SP D15 J01 \*SU -729-136  
Plant for oil removal from waste water - 87902C/49
- \* BARR/ 03.09.80 BARRETO R C R D16 \*BR 8005-592  
Industrial processing of residues from ethanol prodn. by fermentation - C/49
- \* BATE/ 10.04.79 BATES M R D22 \*GB 2047-537  
Air freshener and insect repellent vapour dispenser - 86986C/49
- BATT 17.06.76 MICROMEDIC SYST INC D16 J04 S03 S05 =GB 1580-361  
Automatic heated block type incubator - 19747Y/11
- \* BBEL= 29.08.77 BELO BELGIPIBROSINT D16 (D13) \*SU -729-241  
Microbiological fodder yeast prodn. unit - 88000C/49
- BEEC 23.07.68 BEECHAM GROUP LTD A16 D21 =J8 0044-044  
Gel-base toothpaste - 07126R/05
- BEEC 22.02.79 BEECHAM GROUP LTD D21 E33 (E17 E32) =DK 8000-707  
Quick-drying antiperspirant compsn. - 71991C/41
- \* BEEC 15.05.79 BEECHAM GROUP LTD B02 D16 \*EP --19-409  
Alpha-carboxy-6-alpha methoxy penicillin derivs. prepn. - 86824C/49
- \* BEEC 15.05.79 BEECHAM GROUP LTD B02 D16 \*EP --19-410  
Alpha-carboxy-6-alpha-methoxy penicillin derivs. prepn. - 86825C/49
- \* BEGO- 23.05.79 BEGO BREMER GOLDSCH D15 \*DT 2920-921  
Deposit-free transport of wax contg. liquid - 86533C/49
- \* BEKI 03.05.77 BELORUSS KIROV TECHN INS D16 \*SU -729-240  
Microbiological culture growth unit - 87999C/49
- \* BEKI 29.08.77 BELORUSS KIROV TECHN INS D16 (D13) \*SU -729-241  
Microbiological fodder yeast prodn. unit - 88000C/49
- \* BELV/ 26.07.79 BELVEAL RE D15 \*BE -884-476  
Plant for purificn. of waste water by aeration and clarification - 86405C/49
- \* BELY/ 15.06.76 BELYAEV V D D16 \*SU -729-238  
Microorganisms culture unit - 87997C/49
- BEND- 14.03.79 BEND RES INC A91 D15 J01 M25 #GB 2047-564  
Removing ions from aq. feed soln. - 53314C/30
- BESL/ 11.04.79 BESLER H C04 D16 E17 H09 (D15) =DK 8001-392  
Methane produced from organic waste in fermenting vessel - 60520C/35
- BINT 16.12.78 BRAUN MELSUNGEN AG B04 D21 =DS 2854-534  
Dental pulp cavity filling material consisting of collagen - 45287C/26
- \* BIOE- 23.02.79 BIOEXIM SARL B04 D12 (D21) \*FR 2449-696  
Isolation of protein from fish or crustaceans - 86940C/49
- BIOT- 22.02.79 BIOTECHNOLOGIE AG A11 D16 H01 J01 (A97 H03) =US 4234-689  
Extracellular microbial lipo-hetero polysaccharide derivs. - 71998C/41
- BISE- 04.04.78 BISEIBUTSU KAGAKU B04 C03 D16 =J8 0044-046  
Live vaccine for avian infections laryngotracheitis - 84988B/47
- \* BLAC- 29.03.79 BLACHFORD H L LTD A60 D24 E12 G02 \*GB 2047-731  
Heavy metal soap prodn. from glyceride(s) - 87006C/49
- BOEF 21.02.79 BOEHRINGER MANNHEIM GMBH B04 D16 S03 (S05) =FR 2449-882  
Peroxidase determn. by chemiluminescence - 62523C/36
- BOEF 04.04.79 BOEHRINGER MANNHEIM GMBH B04 D16 =J5 5135-599  
Enzymatic analysis reagent - 73668C/42
- BOEH 07.01.77 BOEHRINGER CH SOHN D13 E17 =OE 7709-163  
Stable buffered aq. food acid solns. - 19762A/11
- BOEK/ 28.04.78 BOEKE J D15 J04 T01 =EP --18-971  
Acidity and ion concn. control process streams - 89369B/49
- \* BORI/ 13.02.78 BORISOV O M D15 L03 T06 X25 \*SU -729-133  
High resistivity deionised water purificn. appts. - 87899C/49
- BOSC 12.04.79 BOSCH R GMBH D13 =GB 2047-610  
Sweet moulding machine - 77220C/44
- \* BOUR/ 04.09.72 BOURNIER E D16 \*FR 2449-406  
Treating Paris mushrooms for storage or deep freezing - 86910C/49
- \* BRAE/ 21.05.79 BRAEUTIGAM H D22 \*DT 2920-533  
Sterilisation of equipment for mfr. of dried vegetables - 86512C/49
- \* BRAS- 26.07.79 BRASSERIES KRONENBO D16 \*BE -884-466  
Suction recycling from and injecting washing soln. to closed vessel - 86402C/49
- BRAU- 09.04.79 BRAUPATENT UNIV AG D16 =DK 8001-482  
Beer brewing vat - 77579C/44
- BRAU/ 28.03.79 BRAUN F D22 =GB 2047-566  
Self-adhesive bandage not adhering to skin, hair, clothes etc. - 56933C/33
- \* BREA= 04.07.77 BREAD-BAKING IND D16 (D11) \*SU -729-247  
Thermophilic strain Lactobacillus delbrueckii-76 - 88006C/49
- \* BREW= 28.04.77 BREWING PRODS RES D16 S03 (D17) \*SU -729-508  
Controlling hydrolysis of starch-contg. material by enzymes - 88062C/49
- \* BROV 19.05.79 BROWN BOVERI & CIE D15 K06 \*DT 2920-405  
Nuclear power station waste water system - 86500C/49
- BRPE 29.07.76 BRITISH PETROLEUM LTD A11 D16 G03 H04 (A97 D12 H01) =GB 1580-439  
Microbial biomass and hetero-polysaccharide bio polymer prodn. - 13391A/07
- \* BUCL 17.10.79 BUCKMAN LABS INC C03 D22 E14 F09 (E16) \*US 4234-665  
Creosote and penta-chlorophenol wood preservative compsns. - 88314C/49



- \*BUDN/ 16.02.78 BUDNIKOV A P A97 D15 J01 M25 (X25) \*SU -729-135  
Clarification of barytes enrichment plant aq. effluent - 87901C/49
- \*CADB 09.03.79 CADBURY SCHWEPPES LTD C03 D22 E14 (C02 E13) \*GB 2047-687  
Microbiocidal compsns. esp. bactericidal and fungicidal - 87003C/49
- CANA 07.10.77 CANADIAN PAT & DEV LTD D23 = CA 1089-849  
De: hulling of rapeseed or mustard seed defatted meals - 32043B/17
- CANA/ 26.02.79 BOVE CANAL J D22 = FR 2449-444  
Sanitary towel or similar adsorbent pad retained by undergarment - 49854C/29
- \*CARL- 15.05.79 CARLTON & UTD BREWE A97 D16 \*EP --19-462  
Coating hop resin onto hydrophobic supports - 86850C/49
- CARN- 23.02.79 CARNATION CO C03 D13 = FR 2449-410  
Expanded intermediate moisture pet food prodn. - 66569C/38
- CART- 02.04.76 CARTIERA SENTINO D16 (D23) = GB 1580-843  
Filter board for wine or oil filter press - 72831Y/41
- \*CELA 15.07.69 CELANESE CORP A97 D18 E37 \*US 4233-993  
Tobacco substitute with good pressure drop characteristics - 88106C/49
- \*CENN 31.07.80 STUDIECENTREM VOOR A97 D15 E36 K08 \*BE -884-563  
Treating aq. effluents contaminated with tritium - 86419C/49
- CGDA 23.02.79 CIE GEN AUTOMATISME B04 D16 S03 (S05) = FR 2449-891  
Automatic measurement of antibiotic activity - 62756C/36
- \*CHEE/ 17.05.79 CHEETHAM J J D21 M22 (M26) \*DT 3018-874  
Metal powder with silver tin alloy coating - 86633C/49
- CHEM 22.10.75 CHEM WERKE HULS AG A35 D21 E13 (A23) = J8 0043-471  
Cyclic diesters prepn. of dodecanedioic acid - 32890Y/19
- CHEM- 25.05.79 CHEMED CORP A97 D25 E34 (A14) = DT 3017-576  
Foam cleaner concentrate for cleaning food plants - 78762C/44
- CHIM- 02.08.76 CHIMICASA GMBH B02 D13 E12 = GB 1580-715  
Sodium saccharin purification - 12548A/07
- \*CHIN 06.02.79 CHINOIN GYOGYSZER B04 D16 \*J5 5104-895  
Prodn. of sisomycin antibiotic - 87082C/49
- CHIN 21.02.79 CHINOIN GYOGYSZER A60 C03 D13 E13 (D21) = FR 2449-681  
2,2-Di:methyl-1,2-di:hydro-quinoline-4-yl methyl sulphonic acid - 48199C/28
- \*CHOK- 17.09.71 CHOKAI MISO KK D13 \*J8 0043-740  
Mfg. easily soluble powdered soybean milk, free from soybean odour - 87586C/49
- \*CHUG 13.04.79 CHUGOKU KAYAKU KK D15 \*J5 5137-082  
Treating waste soln. contg. surfactant - 87519C/49
- CHUS 12.03.69 CHUGAI SEIYAKU KK B04 D16 = NL -165-498  
Enzyme with cell membrane dissolving - 68624R/38
- CHUS 17.09.71 CHUGAI SEIYAKU KK B04 D16 #DS 2146-674  
Enzyme-inducing factor - 27849T/18
- CHUS 14.09.72 CHUGAI PHARMACEUTICAL KK B04 D16 = J4 9048-822  
Haemolytic streptococci drug prepn. - 87589C/49
- \*CHUS 14.09.72 CHUGAI PHARMACEUTICAL KK B04 D16 \*J8 0043-754  
Haemolytic streptococci drug prepn. - 87589C/49
- CIBA 09.09.70 CIBA GEIGY AG B05 D22 E14 = J8 0044-060  
Substd anilino-phenyl acetylhydroxamic acids - 17936T/11
- CIBA 02.08.73 CIBA GEIGY AG D22 J01 = OE 7406-312  
Deodourising waste gases pref. contg. carbon dioxide - 12692W/08
- CIBA 02.02.78 CIBA GEIGY AG B02 C02 D13 (D22) = OE 7900-745  
6-Substd.-2-penem-3-carboxylic acid cpds. and derivs. - 60256B/33
- CIBA 25.01.79 CIBA GEIGY AG B02 D16 = J5 5136-286  
3-Hydroxy, 3,31-di:hydroxy and 1-oxa-rifamycin S derivs. - 57396C/33
- CIBA 11.04.79 CIBA GEIGY AG A60 D25 E24 F06 (E23 F09) = DK 8001-552  
Di:styryl-benzene derivs. contg. amine or ammonium functions - 86707C/49
- \*CIBA 11.04.79 CIBA GEIGY AG A60 D25 E24 F06 (E23 F09) \*EP --19-078  
Di:styryl-benzene derivs. contg. amine or ammonium functions - 86707C/49
- \*CIMP- 16.05.79 CIMPAN COM IND MAQ D11 \*BR 7903-172  
Dough mixer - C/49
- CINT/ 30.07.77 CINTER J A84 D14 (A14) = OE 7805-547  
Deep frying non-stick drum and heater for potato chips - 08036B/05
- \*CLBC 03.08.79 CALBIOCHEM BEHRING B04 D16 J04 \*US 4234-680  
Peroxidase catalysed test reactions used in enzyme immunoassay - 88319C/49
- CNRS 25.06.76 INST NAT SANTE RECH MED B04 C03 D16 = GB 1580-539  
Orally administrable antiparasitic vaccine - 75940Y/43
- \*COAL= 04.05.78 COAL RES INST D15 J01 \*SU -729-140  
Coal enrichment aq. effluent - 87906C/49
- \*COFR 15.05.79 CIE FRANCAISE RAFFINAGE A97 D15 J01 \*EP --19-552  
Waste waters purification from hydrocarbon - 86881C/49
- \*COIL/ 09.10.79 COILLET D W D15 \*US 4234-419  
Removing inorganic salts from water - 88202C/49
- \*COKE 16.05.79 COCA-COLA CO D15 E13 \*BR 7903-016  
Extraction of theobromine and caffeine from cocoa pods - C/49
- COLG 12.11.71 COLGATE PALMOLIVE CO B05 D21 E11 = NL -165-377  
Polyamine polyphosphonates - 30884U/22
- COLG 18.05.79 COLGATE PALMOLIVE CO B05 D21 E19 = DT 3017-417  
Oral hygiene composition contg. peroxy:di:phosphate - 69592C/40
- COLG 18.05.79 COLGATE PALMOLIVE CO B05 D21 E19 = NL 8002-630  
Oral hygiene composition contg. peroxy:di:phosphate - 69592C/40
- \*CONF= 02.10.78 CONFECTIONERY IND D13 \*SU -724-114  
Souffle-type whipped confectionery product - 87726C/49
- CONS/ 22.03.78 CONSTANCE R J D14 = US 4233-892  
Spit roasting appts. - 72242B/40
- CORG 23.02.79 CORNING GLASS WORKS B04 D16 S03 (S05) = FR 2449-895  
Creatine kinase isoenzyme determn. - 64418C/37
- CORP 15.03.77 CPC INTERNATIONAL INC D13 = CA 1089-703  
Stabilised peanut butter easier to spread at low temps. - 51690A/29
- \*COTT= 30.06.78 COTTON IND RES INST A11 D22 F06 \*SU -712-469  
Antimicrobial textile material - 87683C/49
- CRDC 14.05.79 CORDIS DOW CORP A88 D15 J01 = NL 8002-792  
Hollow fibre element for ultrafiltration etc. - 84773C/48
- \*CRIM= 01.04.77 CRIMEA WINE MFG IND D16 T06 \*SU -729-245  
Wine or fruit juice blender control unit - 88004C/49
- \*CUTT 15.05.79 CUTTER LABS B04 D16 \*EP --19-218  
Cultivating influenza virus for vaccine prodn. - 86753C/49
- CWMB- 04.04.79 CHEM MUNCHEN BARLOC D25 E12 = J5 5136-244  
Prodn. of fatty acid soaps in granular form - 79208C/45
- \*DAIR= 02.06.76 DAIRY IND RES INST D15 (D13) \*SU -729-137  
Purification of milk processing aq. effluent - 87903C/49
- \*DAVI- 16.04.79 DAVIES T H LTD D17 \*US 4234-349  
Appts. for purificn. of evaporated sugar solns. - 88163C/49
- \*DAVI- 07.05.79 DAVIES T H LTD A97 D17 \*US 4234-350  
Purificn. of evaporated sugar soln. - 88164C/49
- \*DECI- 17.05.79 DEC INT INC D13 \*DT 3018-486  
Curdled milk fines separation - 86617C/49
- DECI- 17.05.79 DEC INT INC D13 = NL 8002-870  
Curdled milk fines separation - 86617C/49
- DECT 10.02.75 DECO IND INC A35 D15 H09 = OE 7600-918  
Hydrocarbon prods mfr - 48054X/26
- DEFF- 26.02.79 DEFFI D21 = FR 2449-422  
Device for prepn. and reclamation of depilatory wax or cream - 64455C/37
- DEGM 18.11.71 DEGREMONT SA D15 #GB 1580-733  
Waste water purificn. via anaerobic biological filter - 79842Y/45
- \*DEGM 23.03.79 DEGREMONT SA D15 \*BR 8001-642  
Aeration tank for purifying active sludge - C/49
- DEGS 09.07.73 DEGUSSA A97 D15 = DS 2334-766  
Emulsion breaking compsn. for industrial water treatment - 05717W/04
- DEGS 10.03.78 DEUTSCHE GOLD & SILBER D25 E34 = OE 7901-793  
Sodium percarbonate particles coated with dehydrated sodium perborate - 66331B/37
- DEJI- 06.12.74 DE J INT RES CO D13 J01 = OE 7509-193  
Crystallisable matl sepd from liq multicomponent system - 46063X/25
- \*DELP/ 20.02.79 DELPEUCH R D14 \*FR 2449-485  
Size grading sorting machine for round fruits - 86921C/49
- DENT- 15.06.78 DENTAL THERAPEUTICS D21 E19 = GB 2047-730  
Cleaning agent for dentine surfaces - 09172C/05
- DENT- 03.05.79 DENTAL THERAPEUTICS D21 = EP --19-602  
Plaque-dissolving tooth-paste - 86329C/48
- DETE- 13.02.70 DETEC SA D22 E17 = NL -165-378  
Formol disinfecting without forming polymer - 33483S/20
- \*DFOR- 17.05.79 DE FORENEDE BRYGGER A97 B04 D16 \*EP --19-474  
Copper, zinc-superoxidedismutase recovery from yeast - 86855C/49
- \*DFOR- 17.05.79 DE FORENEDE BRYGGER A97 B04 D16 \*EP --19-477  
Copper, zinc-superoxidedismutase isolation from aq. soln. - 86858C/49
- DIAS 01.07.75 DIAMOND SHAMROCK CORP A91 D15 = CA 1090-045  
Amphoteric polymer prepn. - 06866Y/04
- DIDI 17.05.79 DIDIER-WERKE AG D15 H05 J01 = NL 8002-725  
Removal of oil pollutants from water - 67792C/39
- \*DISZ/ 21.05.79 DISZLER R A96 D21 \*DT 2920-566  
Artificial dentures mfr. - 86514C/49
- \*DNCH= 06.12.76 DNEPR CHEM TECH D23 \*SU -729-237  
Oily micelle distn. in oil and fats industry - 87996C/49
- \*DNII 06.04.79 DAINIPPON INK INST CHEM A41 D16 E19 \*J5 5135-593  
Di:carboxylic acid prodn. from Pichia carboferus culture - 87205C/49
- \*DNIN 06.04.79 DAINIPPON INK CHEM KK A41 D16 E19 \*J5 5135-593  
Di:carboxylic acid prodn. from Pichia carboferus culture - 87205C/49
- \*DORT/ 20.04.79 DORTON H E D22 \*US 4234-086  
Soiled surgical sponge handling appts. - 88117C/49
- \*DOVE/ 05.03.79 DOVER V L D15 \*US 4234-421  
Clarification of spent drilling mud - 88204C/49
- DOWC 23.04.76 DOW CHEMICAL CO A97 D25 (A11 A23) = GB 1580-330  
Detergent compsn. for textiles, esp. of polyester - 79793Y/45
- EBAI 12.09.74 EBARA INFILCO KK D15 J01 = J8 0043-400  
Purification of waste water - 32945X/18
- EBAI 07.12.76 EBARA INFILCO KK D15 = J8 0043-832  
Activated carbon treatment of lixiviated sewage - 54556A/30
- EBAI 07.12.76 EBARA INFILCO KK D15 = J8 0043-838  
Treating polluted water oozing from waste - 54566A/30
- \*EBAI 10.04.79 EBARA INFILCO KK D15 \*J5 5137-009  
Appts. for washing membrane in waste water filter module - 87485C/49



- \*EBAR 11.04.79 EBARA MFG KK D15 \*J5 5137-016  
Aq. waste filtering device - 87492C/49
- \*EBNO 08.08.79 EBNOTHER MAG D15 \*BE-884-496  
Introducing oxygen into water having an oxygen insufficiency - 86408C/49
- ECKA-04.05.73 EC KAGAKU KOGYO KK D15 J01 = J8 0043-831  
Waste water purifcn. by coagulative flotation - 59361W/36
- ELIL 21.06.76 ELI LILLY & CO D22 = GB 1580-568  
Killing microorganisms in a container using plasma - 60904Y/34
- \*ELIL 11.12.79 ELI LILLY & CO B02 D16 \*US 4234-684  
Microbiological prepn. of mycophenolic acid glucoside - 88322C/49
- ELLN/09.06.78 ELLNER S D15 S03 (D22) #CA 1089-623  
Ultraviolet liquid purification system - 79920A/44
- \*EMAI/11.05.79 EMAI D12 \*US 4234-610  
Removal of the offensive odour of shark meat - 88288C/49
- ENIE-18.05.79 ENI ELECTRISCHE NIJ D22 = DT 3018-169  
Sterile conditioned atmos. for particular zone of room - 71611C/41
- ENIE-18.05.79 ENI ELEC NIIVERHEID D22 = NL 8002-851  
Sterile conditioned atmos. for particular zone of room - 71611C/41
- ERAP 08.03.78 ELF AQUITAINE PROD A28 C03 D15 F06 (A87 A91) = US 4234-692  
Addition polymer with lateral beta-hydroxy poly:sulphonium gps. - 66337B/37
- EZAK 23.04.71 EZAKI GLICO D13 (D12) = J4 7039-560  
Coloured artificial meat prepn. - 87584C/49
- \*EZAK 23.04.71 EZAKI GLICO D13 (D12) \*J8 0043-737  
Coloured artificial meat prepn. - 87584C/49
- FAIL-14.09.77 FAIL SAFE APP CORP D22 F07 #GB 1580-550  
Panty with sanitary napkin compartment - 64656Y/36
- FARB 22.03.79 BAYER AG C03 D22 E17 = BR 8001-729  
Microbicidal agents for use as disinfectants - 71715C/41
- FARB 10.05.79 BAYER AG B03 D02 = EP --19-130  
Antimycotic compsn. for human or veterinary medicine - 84587C/48
- \*FARB 21.05.79 BAYER AG A25 D15 \*EP --19-214  
Polyurethane foam prodn. contg. reactive filler - 86749C/49
- \*FARB 21.05.79 BAYER AG A11 C04 D16 F09 (A81 A97) \*EP --19-215  
Denatured polyaddition prod. from biomass and isocyanate - 86750C/49
- \*FARB 21.05.79 BAYER AG A41 C04 D15 E14 \*EP --19-216  
Accelerating sedimentation in waste water treatment - 86751C/49
- FARH 25.03.77 HOECHST AG C02 D22 E13 F09 (F06) #GB 1580-485  
Pesticidal triazolidino-pyridazin-diones - 25383Y/15
- FARH 20.08.77 HOECHST AG D13 E17 (D21 E16) = US 4234-509  
Simultaneous prepn. of fatty acid nitrile(s) and glycerol - 18378B/10
- FARH 19.03.79 HOECHST AG D13 E36 = BR 8001-595  
Phosphoric acid purifcn. from organic impurities - 71684C/41
- FARH 19.04.79 HOECHST AG C03 D13 = NO 8001-134  
Removal of undesirable components from animal protein - 79256C/45
- \*FEPU 12.05.74 FERR METAL EFFL PURIF A97 D15 \*SU -712-395  
Treatment of industrial hard water for boilers etc. - 87677C/49
- \*FIRM 30.08.78 FIRMENICH SA D13 E17 \*US 4234-741  
Benzene selenenyl acetal derivs - 88342C/49
- \*FISO 14.08.76 FISON LTD D17 (D13 D16) \*GB 1580-440  
Sepn. of diabetin from aq. mixts. with dextran - 86966C/49
- FMCC 04.02.70 FMCC CORP D13 = J8 0043-733  
Heat-sterilised artificial milk drink prodn - 53460S/33
- FMCC 08.04.71 FMC CORP D15 = J4 7036-055  
Sewage treatment - 04746U/04
- FMCC 08.04.71 FMC CORP D15 = J8 0043-371  
Sewage treatment - 04746U/04
- FMCC 04.08.72 FMC CORP D25 E12 = DS 2339-117  
Detergent compsns - 11169V/06
- FMCC 28.03.77 FMC CORP D25 E19 F06 (D22) = GB 1580-614  
Crystalline percarboxylic acids prepn. from carboxylic acids - 68934A/39
- FMCC 02.04.79 FMC CORP B04 D16 J04 S03 = US 4234-316  
Device for delivering reagent(s) to a liq. assay medium - 77480C/44
- FREU 11.02.77 FREUDENBERG, CARL FA D21 (D16) = DS 2705-670  
Water-soluble elastin hydrolysates prodn. - 60608A/34
- \*FREU-12.04.79 FREUND SANGYO KK D13 \*J5 5135-545  
Prepn. of powdered milk e.g. for calves - 87192C/49
- \*FREU-12.04.79 FREUND SANGYO KK A96 B04 D16 \*J5 5136-217  
Soluble intestine enzyme drug prepn. - 87363C/49
- FRIN-21.02.79 CIE FRANC PROD IND D12 \*FR 2449-405  
Chemically removing skins from fish - 86909C/49
- FROM-26.02.79 FROMAGE BRESSE-BLEU D13 \*FR 2449-407  
Wt. correction of individual cheeses after moulding - 86911C/49
- FROM-26.02.79 FROMAGE BRESSE-BLEU D13 \*FR 2449-408  
Mechanised brining and spiking of blue-moulded cheeses - 86912C/49
- IFUKO 11.03.67 FUJIOIL KK D13 \*J8 0043-739  
Cream-like fat compsn. prepn. - 87585C/49
- IFUKU/16.03.78 FUKUHIRO Y D14 = J5 4123-476  
Appts. for producing livestock feedstuff - 87598C/49
- IFUKU/16.03.78 FUKUHIRO Y D14 \*J8 0043-816  
Appts. for producing livestock feedstuff - 87598C/49
- \*FUKU/10.04.79 FUKUDA T D13 \*J5 5135-553  
Heat-stable whipping agent for use in foods - 87195C/49
- FULL-00.00.78 FULLPACK WIELAND D D16 E36 S03 S05 = DT 2919-767  
Automatic determ. of carbon di:oxide content, esp. in beer - 40860C/23
- FULL-14.11.78 FULLPACK WIELAND D D16 E36 S03 S05 = DT 2920-154  
Automatic determ. of carbon di:oxide content, esp. in beer - 40860C/23
- \*FULL-16.05.79 FULLPACK WIELAND D D15 E36 T06 \*DT 2919-656  
Metered carbon di:oxide injection - 86462C/49
- \*GCSH-10.04.79 GC SHIKA KOGYO KK A96 D21 (A14) \*J5 5135-117  
Resin compsn. for dental plate - 87131C/49
- \*GEES/06.08.79 GEESINK BT D14 \*BE-884-561  
Cage like container for cheese during ripening - 86418C/49
- GENA 09.04.79 GAF CORP D25 E17 (E16) = US 4234-464  
Detergent bar binder compsns. - 77013C/43
- GILL 15.08.75 GILLETTE CO D21 = US 4234-475  
Proteinaceous surfactants used in skin care prods. - 20300C/12
- \*GIME/27.06.80 GIMENES R D17 \*BR 8004-049  
Sugar cane diffuser for distillery - C/49
- \*GLIE/09.06.79 GLIEMANN G A88 D18 \*DS 2923-461  
Furriers stretching plate - 86437C/49
- GRAC 03.12.71 GRACE W R CO D15 = J8 0043-837  
Closed circuit liquid oxygenator - 35377U/25
- \*GUDA/06.02.78 GUDASHEVA V M A97 C04 D15 \*SU -729-128  
Removal of suspended matter in aq. effluents - 87894C/49
- GULO 27.04.79 GULF OIL CORP D16 (D17) = GB 2047-709  
Reuse of endoglucanase and cellobiohydrolase enzymes - 67666C/38
- HAAS/30.09.76 HAAS F D11 = GB 1580-860  
Moulding wafer biscuit cornets etc., esp. for frozen foods - 08375A/05
- HAAS/12.04.79 HAAS F D11 = GB 2047-647  
Waffle block cutting machine - 79107C/45
- HAGE-16.06.70 HAGER AND ELSASSER D15 J01 = J8 0043-387  
Ion exchange water treatment - 00311T/01
- HANN-21.02.79 HANNA FURNACE CORP D15 H09 = FR 2449-653  
Coking plant waste water purification - 64417C/37
- HARA/30.09.74 HARA M D15 J01 = J5 1039-954  
Device for PPTN. of suspended solids in sedimentation tank - 87564C/49
- \*HARA/30.09.74 HARA M D15 J01 \*J8 0043-373  
Device for PPTN. of suspended solids in sedimentation tank - 87564C/49
- \*HASE 09.04.79 HASEGAWA KK D23 E17 \*J5 5136-247  
Unsatd. aliphatic carboxylic acid ester prepn. - 87383C/49
- \*HASE 09.04.79 HASEGAWA KK D23 E17 \*J5 5136-249  
Cis-or trans-octenoic acid cpds. - 87384C/49
- HAUS-22.02.79 GAGGENAU-W HAUS LUFT D14 = FR 2449-848  
Cooking oven with movable heating element - 64291C/37
- HAYB 24.01.69 HAYASHIBARA BIOCHEM CO D17 = NL -165-500  
Powdered amylose - 54028R/30
- \*HAYB 09.04.79 HAYASHIBARA BIOCHEM B04 D16 \*J5 5135-594  
Modifying activity of amylase inhibitor - 87206C/49
- HENK 29.11.73 HENKEL KG AUF AKTIEN D21 E13 = NL -165-376  
Tetraaminopyrimidines as developers in oxidation hair dyes - 39183W/24
- HENK 01.10.76 HENKEL KG AUF AKTIEN A97 D25 E17 (A25 E14) = OE 7706-987  
Low-foaming dishwasher rinsing compsn. - 25208A/14
- HENK 28.05.77 HENKEL KG AUF AKTIEN A97 D25 (A25) = OE 7803-835  
Rinsing prod. for dish washing machines, contg. draining cpd. - 86153A/48
- HENK 23.03.78 HENKEL KG AUF AKTIEN D21 E23 = OE 7902-118  
Hair dyeing compsns. - 72134B/40
- HENK 25.03.78 HENKEL KG AUF AKTIEN D21 E13 = OE 7902-181  
Hair dyeing compsns. - 72133B/40
- HENK 06.07.78 HENKEL KG AUF AKTIEN A97 D25 E19 (A25) = US 4234-444  
Nonionic surfactant detergent compsn. - 05614C/04
- HENK 26.03.79 HENKEL KG AUF AKTIEN A97 D25 = BR 8001-788  
Textile detergents with sizing action - 75421C/43
- HENK 29.03.79 HENKEL KG AUF AKTIEN A11 D25 (A97) = J5 5137-101  
Purifying cold water-soluble cellulose ether - 73730C/42
- \*HENK 07.05.79 HENKEL KG AUF AKTIEN A97 D25 E19 F06 \*DT 2918-363  
Fabric-softening detergent powders - 86448C/49
- \*HERZ/25.05.79 HERZ H D22 \*DT 2921-230  
Steam sterilising apparatus - 86546C/49
- \*HITA 22.09.78 HITACHI KK D15 \*J5 5084-507  
Controlling ph and alkali degree in water under purification - 87067C/49
- \*HITA 16.04.79 HITACHI KK D15 \*J5 5137-017  
System for water purifcn. plant filter operation - 87493C/49
- \*HITB 10.04.79 HITACHI CHEMICAL KK D15 E36 \*J5 5137-085  
Phosphoric acid-contg. waste water purifcn. - 87522C/49
- \*HITB 11.04.79 HITACHI CHEMICAL KK D15 \*J5 5137-012  
Moving bed type filtering process for waste water - 87488C/49
- \*HITB 13.04.79 HITACHI CHEMICAL KK D15 \*J5 5137-013  
Water filtration by upward passage through granular medium - 87489C/49
- HITG 18.12.71 BABCOCK-HITACHI KK D15 J01 = J4 8067-175  
Multistage flash evaporator for desalination of sea-water - 87592C/49



- \*HITG 18.12.71 BABCOCK-HITACHI KK D15 J01 \*J8 0043-801  
Multistage flash evaporator for desalination of sea-water - 87592C/49
- \*HITJ 16.04.79 HITACHI ENGINEERING KK D15 \*J5 5137-017  
System for water purificn. plant filter operation - 87493C/49
- HOBA- 06.06.77 HOBART CORP D14 = CA 1089-846  
Foodstuff mixing bowl and integral motor - 92971A/51
- HOBA- 06.06.77 HOBART CORP D14 = CA 1089-847  
Automatic food mixer with lid scraper - 66995A/37
- \*HODO 14.04.79 HODOGAYA CHEM IND KK D15 E12 M13 \*J5 5137-087  
Decomposition of cyano-metal complex salts in water - 87524C/49
- HOFF 29.11.76 HOFFMANN-LA ROCHE AG D21 E24 (E31) = OE 7708-503  
Cosmetic compsn. esp. dry shampoo, contg. coloured cellulose - 38496A/22
- \*HOFF 02.04.79 HOFFMANN-LA ROCHE AG B04 D16 \*EP --19-072  
Penta:deca:peptide from Streptovorticillium sp. ATCC 31499 - 86705C/49
- \*HOFF 27.04.79 HOFFMANN-LA ROCHE AG A97 B05 D16 \*EP --19-054  
Totally synthetic nutrient medium - 86696C/49
- HOFF 04.05.79 HOFFMANN-LA ROCHE AG B02 D22 E13 = EP --19-148  
2-Alanyl-clavam antibiotic - 38129C/21
- \*HOFF 22.05.79 HOFFMANN-LA ROCHE AG B05 D16 \*EP --19-302  
Tetra:cyclic antibacterial and antitumour agents - 86784C/49
- HOFF 21.02.80 ROCHE PROD LTD A97 B05 D16 = GB 2047-739  
Totally synthetic nutrient medium - 86696C/49
- \*HOLT 20.09.78 HOLLYMATIC CORP D12 \*US 4233-710  
Hamburger moulding appts. - 88074C/49
- \*HONI/ 17.11.78 HONIS R D22 S05 \*OE 7808-213  
Device for bactericide treatment of commodities with UV radiation - C/49
- HONS 23.02.79 YAKULT HONSHA KK B04 D13 (D16) = FR 2449-411  
Food and drink contg. bifido-bacteria, for bottle fed babies - 62727C/36
- \*HOTA/ 11.12.78 HOTAR Z D15 \*CS 7808-188  
Aeration of organic waste materials - C/49
- HOUS- 19.01.73 HOUSE SHOKUHIN KOGY D16 = J4 9094-866  
Prepn. of powdered milk contg. live lactobacilli - 87590C/49
- \*HOUS- 19.01.73 HOUSE SHOKUHIN KOGY D16 \*J8 0043-755  
Prepn. of powdered milk contg. live lactobacilli - 87590C/49
- \*HOUS- 23.05.77 HOUSE FOOD IND CO D11 \*US 4234-617  
Instant cooking noodles prepn. - 88294C/49
- HOYJ 10.04.79 TOYO SODA MFG KK B05 D13 E14 = J5 5136-257  
Alpha-L-aspartyl-L-phenylalanine ester sweetening agents purificn. - 77325C/44
- \*HUSE/ 11.10.78 HUSER K D15 \*CS 7806-586  
Liquid cpds. gravitational separator - C/49
- \*HUTT/ 21.10.77 HUTTER K D15 J02 \*OE 7707-535  
Liq. aeration device - C/49
- \*HYDR- 15.05.79 HYDRANAUTICS D15 \*NL 8001-712  
Membrane module for reversed osmosis - 87640C/49
- \*HYMA/ 10.05.79 HYMANN S A97 B07 C03 D22 \*EP --19-010  
Device for dispersing volatile substance into atmosphere - 86688C/49
- ICIL 09.12.70 IMPERIAL CHEM INDS LTD B04 C03 D16 (D13) = DS 2161-164  
Protein prodn - 40494T/25
- ICIL 01.07.75 ICI AUSTRALIA LTD A91 D15 = CA 1090-045  
Amphoteric polymer prepn. - 06866Y/04
- ICIL 14.09.76 IMPERIAL CHEM INDS LTD D16 E13 (D17) = US 4234-687  
Beta:galactosidase enzyme generation - 21890A/12
- ICIL 01.11.77 ICI AUSTRALIA LTD C03 D13 = US 4234-608  
Chemically hardened animal feed blocks - 37609B/20
- ICIL 18.04.79 IMPERIAL CHEM INDS LTD C02 D13 #SW 7903-399  
Treatment of ruminants with aplasmomycin or related cpds. - 52996B/29
- ICIL 18.04.79 IMPERIAL CHEM INDS LTD C02 D13 #SW 8003-249  
Treatment of ruminants with aplasmomycin or related cpds. - 52996B/29
- \*IGAK- 09.04.79 IGAKU SEIBUTSUGAKU A96 B04 D16 J04 \*J5 5135-752  
Determin. of immunoglobulin E in human blood - 87258C/49
- \*INFL 27.07.78 INT FLAVORS & FRAGR INC D13 E13 \*US 4234-616  
Enhancing flavour with di- or tri-alkyl-di:hydro furanone(s) - 88293C/49
- \*INFL 10.08.78 INT FLAVORS & FRAGR INC D23 E15 \*US 4234-518  
Methylated cyclohexenyl-alkenone cpds. - 88249C/49
- \*INFL 20.10.78 INT FLAVORS & FRAGR INC B02 D13 E13 (D18 D21 D23) \*US 4234-463  
Augmenting the aroma of perfume compsns. - 88227C/49
- INOZ 08.05.74 INOUE JAPAX RES INC D15 = J5 0143-344  
Active sludge water treatment - 87599C/49
- \*INOZ 08.05.74 INOUE JAPAX RES INC D15 \*J8 0043-833  
Active sludge water treatment - 87599C/49
- INSP 15.06.76 INST PASTEUR D15 = GB 1580-345  
Ultra pure water prepn. - 88264Y/50
- \*INST- 20.02.79 INST NAT RECH CHIM D15 \*FR 2449-658  
Purificn. of aq. effluent - 86935C/49
- \*JAPG 02.05.79 NIPPONZEON KK A14 D16 \*EP --19-404  
Blending vinyl chloride resin prepn. - 86823C/49
- JAPS 22.09.75 JAPAN SYNTHETIC RUBBER A11 D23 F09 = J8 0044-120  
Highly pure fatty acids, resin acids and sterols - 25527Y/15
- JOHJ 22.12.75 JOHNSON & JOHNSON A96 D21 E19 (A25 D16 E37) = CA 1089-789  
Enzyme-contg. denture cleaning tablets - 71238A/40
- \*JOSE/ 17.04.79 JOSEFSSON T D25 \*SW 7903-310  
Washing compsn. - C/49
- KACH- 01.03.77 KACHIKU EISEI SHIKE B04 C03 D16 = J8 0043-451  
Lowering toxicity of mycoplasma shinobie - 77245A/43
- KAFF- 31.07.76 KAFFEE-VEREDELUNGS A91 D13 = DS 2634-535  
Decaffeination of coffee - 15358A/08
- KAKY 10.06.77 KAKENYAKU KAKO KK B04 D16 = US 4234-570  
Insulin secretion stimulating protein(s) for diabetes treatment - 89669A/50
- \*KALU= 17.04.78 KALUGA KHLORVINIL A14 D15 E16 \*SU -688-442  
Removal of emulsified PVC from aq. effluent - 87669C/49
- KANE 25.00.73 KANEBO KK D21 = J8 0043-443  
Skin whitening cosmetics contg. ascorbic and urocanic acids - 31285W/19
- KANE 11.04.79 KANEBO KK A14 D21 E37 (A96 D22) = J5 5136-211  
Tri- or tetra:acrylate ester resin for medical or dental use - 79244C/45
- KANE 11.04.79 KANEBO KK A14 D21 E37 (A96 D22) = J5 5136-212  
Tri- or tetra:acrylate ester resin for medical or dental use - 79244C/45
- KANF 13.04.72 KANEGAFUCHI CHEM KK B05 D15 E16 = J8 0043-396  
Methionine prodn waste water purifn - 47760V/26
- KANK- 14.01.76 KANKYO KAGAKU CENTE A88 D15 = J8 0043-397  
Waste water filtration bed - 69538Y/39
- \*KATA- 19.12.78 KATAYAMA KAGAKU KOG A97 D15 J01 M24 \*J5 5084-597  
Waste gas dust collector wash water - 87069C/49
- KAUP/ 09.04.79 KAUPERT G D13 = DK 8001-502  
Chocolate moulding system - 75520C/43
- \*KAYA 12.04.79 KAYAKU ANTIBIOTIC RES C03 D13 \*J5 5135-554  
Cattle feed contg. sodium colistin methane sulphonate - 87196C/49
- \*KDFO= 10.05.77 KRASD FOOD IND RES D13 \*SU -724-116  
Extracting bitter substance from black peppers - 87728C/49
- KENK/ 15.04.77 KEN K D15 J01 (J03) = J8 0043-808  
Ion removal from aq. soln. - 90541A/50
- KEYF 15.06.76 KEYES FIBRE CO A97 D15 F09 H03 = CA 1089-841  
Porous wood-based absorbent for removing oil from water - 03522A/02
- \*KIBA= 25.11.77 KIEV BACTERIAL PREP D13 (D16) \*SU -724-113  
Protecting dried lactic acid bacteria during spray-drying and storage - 87725C/49
- \*KIKK 28.12.70 KIKKOMAN SHOYU KK B04 D16 \*J8 0043-757  
Prepn. of enzyme for dissolving bacteria cell wall - 87591C/49
- KIMB 20.12.73 KIMBERLY CLARK CORP A96 D22 F04 = NL -165-373  
Flexible absorbent sanitary pads with soft edges - 33909W/20
- KIMU/ 07.03.77 KIMURA S D13 = J8 0043-738  
Water-dispersible, sterilised protein salt prepn. - 78939A/44
- \*KLPO= 10.03.78 KALIN POLY D15 \*SU -729-130  
Livestock discharge from farms processing - 87896C/49
- KNUT/ 18.04.79 KNUTSON R A A96 B05 C03 D22 = NO 8001-112  
Antibacterial, antifungal compsn. for treating wounds, burns etc. - 62309C/36
- KNUT/ 18.04.79 KNUTSON R A A96 B05 C03 D22 = SW 8002-847  
Antibacterial, antifungal compsn. for treating wounds, burns etc. - 62309C/36
- \*KOCK/ 21.02.77 KOCKOVA-KRATOCHVILO D16 \*CS 7701-112  
Alpha-Amylase prodn. - C/49
- \*KOCK/ 03.06.77 KOCKOVA-KRATOCHVILO D16 \*CS 7703-652  
Alpha-Amylase enzyme prodn. - C/49
- \*KOCK/ 03.06.77 KOCKOVA-KRATOCHVILO D16 \*CS 7703-653  
Cellulose degrading enzymes prodn. - C/49
- \*KONZ- 28.07.80 KONZERV PAPRIKAIPAR D14 \*BE -884-511  
Gravity flow separator to clean peas for canning etc. - 86411C/49
- \*KORI/ 08.01.79 KORINEK M D15 J01 \*CS 7900-169  
Liquids purificn. and treatment by ion-exchange filtration - C/49
- \*KOSA/ 11.01.79 KOSAR J D13 \*CS 7900-271  
Raw potatoes preservation - C/49
- \*KOVE/ 12.12.77 KOVEL MS D15 M12 \*SU -729-138  
Processing spent iron sulphate contg. pickle liquor - 87904C/49
- KOWA 16.04.79 KOWA KK B02 D16 = GB 2047-700  
Aza:bi:cycloheptane-carboxylic acid derivs. - 80122C/45
- KOWA 16.04.79 KOWA KK B02 D16 = SW 8002-827  
Aza:bi:cycloheptane-carboxylic acid derivs. - 80122C/45
- KOWA/ 15.05.79 KOWALSKY H D13 = NL 8002-750  
Natural laxative products - 69827C/40
- \*KOZL/ 17.08.77 KOZLENKO D SH A35 D22 \*SU -728-862  
Rubber articles sterilisation - 87814C/49
- \*KREU- 15.05.79 KREUTER & CO KG GMB D13 \*DT 2919-408  
Confectionery moulding box emptying machine - 86456C/49
- \*KRFT 13.08.73 KRAFT INC D13 \*US 4234-615  
Drainage of large cheese blocks - 88292C/49
- KRFT 02.09.75 KRAFT INC D13 = CA 1089-702  
Continuous prodn. line to mfr. processed cheese - 02074Y/02



- \*KRUN 25.05.79 KRAFTWERK UNION AG D15 K07 \*DT 2921-351  
Radioactive resin filter sampling - 86550C/49
- KURE 16.08.76 KUREHA CHEM IND KK B04 D13 (D16) = J8 0043-756  
Basidiomycetes mycelia prodn. by cultivation - 29361A/16
- KURE 22.09.77 KUREHA KAGAKU KOGYO D13 E17 J01 = US 4234-460  
Ethylene adsorbent of active carbon - 29978B/16
- KURK 16.05.77 KURITA WATER IND KK D15 J01 (D14) = DS 2821-365  
Pulp dewatering system - 86474A/48
- \*KURS 03.04.79 KURARAY KK A97 C03 D13 (A14) \*J5 5135-531  
Fish bait contg. an attractant and PVA foam - 87190C/49
- KYOW 30.06.78 KYOWA HAKKO KOGYO D12 = US 4234-607  
Pickled meat prod. prodn. - 01977C/02
- KYOW 17.05.79 KYOWA HAKKO KOGYO B03 D22 E13 #DT 2920-033  
2-Acyl or alkyl fortimicin derivs. - 47154B/26
- LABO 02.12.77 LABOFINA SA D23 (D13) = GB 1580-683  
Hydrogenation catalyst for oils, esp. cooking oils - 27888B/15
- LAEV 07.02.69 LAEVOSAN CHEM PHARM IND D17 E13 = NL-165-467  
Lactulose concentrates which are substant- - 55451R/31
- LAGS/ 18.04.79 LAGSTROM G E D15 M25 = SW 7903-367  
Extraction of valuable substances from sea water - 79412C/45
- \*LANH- 11.04.72 LANHAM MACH CO INC D11 \*US 4234-281  
Pan reservoir system for bakery - 88140C/49
- \*LEBR= 04.07.77 LENGDBREAD-BAKING IND D16 (D11) \*SU -729-247  
Thermophilic strain Lactobacillus delbrueckii-76 - 88006C/49
- \*LEEN= 23.10.78 LENGDENG CONS INST D15 X25 \*SU -729-134  
Biological aq. effluent purificn. - 87900C/49
- LEHM- 26.03.79 LEHMANN H AG D15 J01 = BR 8001-791  
Double band filter for sludge filter - 71757C/41
- LEMC/ 13.02.78 LEMCHEN M S D22 = EP --18-968  
Timed cold steriliser - 19960B/10
- \*LEMO- 10.04.79 LEMON SAN KK D13 \*J5 5135-568  
Water-soluble seasoning compsn. - 87198C/49
- \*LENI 11.08.77 LENINGRAD LENSOVET TECH D15 X25 (D16) \*SU -729-143  
Vitamin-protein microbiological prodn. aq. effluent - 87909C/49
- \*LEOJ/ 23.04.79 LEO J N D15 \*US 4234-425  
Water fluoridation system with venturi - 88206C/49
- \*LEOP/ 08.01.79 LEOPOLD J D16 \*CS 7900-177  
Acidic molasses soln. prepn. for citric fermentation - C/49
- LEUT/ 25.02.77 LEUTHARD P E A96 D21 L02 = US 4234-310  
Porous ceramic inlay for dental fillings - 63818A/36
- \*LIFE- 03.04.78 LIFELINE PRODUCTS A97 D16 \*US 4234-686  
High rate dextrose conversion from starch - 88324C/49
- LIND 24.04.79 LINGENS & SOHNE D16 E17 J01 = EP --19-105  
Purificn. or sepn. of gases by pressure changes and adsorption - 81007C/46
- LIND 10.05.79 LINGENS & SOHNE D15 = EP --19-203  
Treatment of effluent water - 84591C/48
- LIOY 30.03.78 LION FAT & OIL KK D25 E16 F06 = US 4234-465  
Textile detergent compsn. having softening activity - 75549B/42
- \*LIPP/ 14.05.79 LIPPELT W D11 \*DT 2919-333  
Mechanical oil application to dough - 86453C/49
- LOCK/ 11.11.76 LOCK P M A96 D22 (A25) = US 4233-969  
Water vapour and air permeable bandage - 38776A/22
- LOIR- 24.03.79 LOIRE COSMETICS CO B07 D21 = GB 2047-563  
Emulsifier for creams and lotions - 71850C/41
- \*LOMS 26.07.79 LAB OM SA B04 D16 \*BE -884-456  
Immuno-therapeutic E. coli lysates - 86397C/49
- \*MALI/ 25.07.78 MALIK V C04 D15 \*CS 7804-934  
Organo-mineral fertilisers - C/49
- \*MALI/ 14.08.78 MALIK V D13 \*CS 7807-093  
Use of expanded silicates for agricultural products storage - C/49
- \*MASI 17.05.79 MASSACHUSETTS INST TECH B02 D16 \*DT 3018-767  
Antibacterial iso:penicillin n derivs. prodn. - 86631C/49
- MASW 17.11.78 MASCH FAB BUCKAU R D17 = DS 2849-927  
Continuous sugar crystal centrifuge - 38457C/22
- MASW 26.02.79 MASCH FAB BUCKAU R D15 J01 X25 = FR 2449-655  
Reverse osmosis plant installation with extra pump - 49859C/29
- MATS/ 09.05.77 MATSUMURA S D12 E34 = J8 0043-746  
Softened, colour stabilised processed bonito flesh prodn. - 04957B/03
- MAZN 14.04.79 MARUZEN OIL KK A13 D15 J01 (A91) \*J5 5137-106  
Hydroxy:styrene polymer contg. lactone gp. - 87529C/49
- MCM/ 24.11.78 MCMILLAN W A B04 D16 \*US 4234-683  
Detection of beta-lactamase producing microorganisms - 88321C/49
- \*MCM/ 24.04.79 MCMINN D J W D22 \*GB 2047-540  
Limb splint - 86987C/49
- \*MECA- 12.05.79 MECAPEC SA A88 D15 = EP --19-248  
Trickling sewage treatment drum plate - 84614C/48
- \*MECC- 22.05.79 OFF MECC SOAVI BRUN D13 \*DT 2940-795  
Emulsion homogenising machine - 86569C/49
- \*MEDI- 30.04.68 MEDIZIN-APPARATE GM D22 = DS 1767-346  
Cylindrical sterilizer - 09050T/06
- \*MEIJ 12.04.79 MEIJI SEIKA KAISHA D13 \*J5 5135-546  
Cacao powder prodn. - 87193C/49
- \*MEIP 27.11.78 MEIJI MILK PRODS KK B04 D16 \*J5 5072-120  
Increasing yield of interferon - 87022C/49
- MERI 01.12.76 MERCK & CO INC A97 D13 = CA 1089-701  
Thickening agent for starch-free (salad) dressings - 42502A/24
- MERI 19.12.77 MERCK & CO INC A96 B04 D16 J04 (S03 S05) = US 4234-564  
Hepatitis B nucleus antigen prepn. - 76264A/43
- \*META- 16.05.79 METAL JALMAK LTDA D12 \*BR 7903-170  
Continuous vacuum filling machine - C/49
- MEUN/ 30.10.78 MEUNIER H E D16 J04 S03 = DT 2943-579  
Device for studying biochemical or enzymatic reactions - 45501C/26
- \*MEYE- 14.05.79 MASCH MEYER AG A88 D15 J01 K07 \*DT 2925-170  
Radioactive waste filtration process - 86565C/49
- \*MICA/ 10.01.79 MICA B D13 \*CS 7900-240  
Potatoes storage - C/49
- \*MICR= 21.09.78 MICROBIOL PLANT PRO B04 D16 \*SU -729-244  
Actinomyces aureovercillus 875 - 88003C/49
- \*MICR= 21.09.78 MICROBIOL PLANT PRO C03 D16 \*SU -729-246  
Microbial strain Beauveria bassiana bals VNILL 124-P - 88005C/49
- MIFI 22.02.79 MILLIPORE CORP B04 D16 = FR 2449-726  
Fast reacting lipase compsn. for hydrolysis of glycerol ester(s) - 64448C/37
- \*MIHA/ 05.04.79 MIHAMA H B04 D16 \*J5 5135-590  
Modified asparaginase and uricase - 87203C/49
- MILE 23.02.79 MILES LABORATORIES INC B04 D16 J04 S05 (S03) = FR 2449-727  
Measurement of glucose in body fluids - 53328C/31
- \*MILE 21.05.79 MILES LABORATORIES INC B04 D16 \*EP --19-253  
Determin. of tri:glyceride(s) in biological fluids - 86766C/49
- \*MINN 03.12.76 MINNESOTA MINING CO D21 E33 \*US 4233-976  
Styptic device for minor wounds - 88105C/49
- MIRA- 23.03.79 MIRA LANZA SPA D25 E19 = BR 8001-652  
Washing powder compsn. of low phosphate content - 55257C/32
- \*MIST 12.04.79 MITSUBISHI ACETATE A88 D18 F09 J01 (A11) \*J5 5135-582  
Composite fibrous material for cigarette filter - 87200C/49
- \*MITA- 08.12.78 MITAJIRI KAGAKU KOG A11 D22 E12 J01 \*J5 5079-039  
Zinc nitrohumate based deodorising agent - 87041C/49
- MITC 28.07.72 MITSUI PETROCHEM IND KK A41 D16 E17 H04 = J8 0043-759  
Dicarboxylic acid prodn. - 49286V/27
- MITC 17.11.72 MITSUI PETROCHEM IND KK D16 E17 = NL-165-499  
Citric acid by aerobic fermentation - 39925V/22
- \*MITM 16.04.79 MITSUBISHI MOTOR CORP D15 \*J5 5137-011  
Lower cost flocculation of waste water - 87487C/49
- MITN 11.04.79 MITSUBISHI GAS CHEM IND B04 D16 S03 = J5 5135-589  
Peroxidase enzyme microbiological prodn. - 81134C/46
- MITO 02.02.71 MITSUBISHI HEAVY IND KK D15 F09 = J4 7028-761  
Treating of pulp waste water - 87600C/49
- \*MITO 02.02.71 MITSUBISHI HEAVY IND KK D15 F09 \*J8 0043-836  
Treating of pulp waste water - 87600C/49
- MITO 05.11.73 MITSUBISHI HEAVY IND KK D15 E03 J01 L02 = J8 0043-814  
Impurities removal from gas scrubbing solns contg. ammonium sulphate - 79892X/43
- MITO 23.10.78 MITSUBISHI HEAVY IND KK D15 = J8 0044-284  
Fluidised incineration of sludge contg. nitrogenous component - 40707C/23
- \*MITP 03.04.79 MITSUBISHI PETROCH KK B04 D16 \*J5 5135-588  
Thermostable catalase prepn. - 87202C/49
- \*MITQ 09.05.79 MITSUBISHI ELECTRIC CORP D15 \*EP --19-143  
Water recovery from moist atmospheric air - 86722C/49
- MITR 09.04.79 MITSUBISHI RAYON KK A96 B04 D16 (A97) = J5 5135-591  
Enzyme and microorganism immobilisation - 75564C/43
- \*MITR 12.04.79 MITSUBISHI RAYON KK A88 D18 F09 J01 (A11) \*J5 5135-582  
Composite fibrous material for cigarette filter - 87200C/49
- \*MITU 13.04.79 MITSUBISHI CHEM IND KK D15 \*J5 5137-082  
Treating waste soln. contg. surfactant - 87519C/49
- \*MITU 13.04.79 MITSUBISHI KASEI TECHNO D15 \*J5 5137-082  
Treating waste soln. contg. surfactant - 87519C/49
- \*MIWA/ 18.05.79 MIWA J D16 \*DT 3018-899  
Kit for teaching genetics laws - 86637C/49
- MOBI 13.12.76 MOBIL OIL CORP C03 D16 H01 (D13) = CA 1089-790  
Algae biomass and bio:polymer prodn. - 47459A/26
- \*MOFO= 10.08.78 MOSC FOOD IND TECHN D11 \*SU -712-072  
Additive mixt. for macaroni paste - 87672C/49
- \*MOGI= 22.02.78 MOGIL KHMVOLOKNO A41 D15 E14 \*SU -729-139  
Removal of organic cpds. from di:methyl terephthalate prodn. effluent - 87905C/49
- MORE/ 20.02.79 MOREAU L D11 = FR 2449-404  
Pressing dough balls into circular blanks for pizzas, flans etc. - 64669C/37
- \*MOTE= 30.06.78 MOSC TEXTILE INST A11 D22 F06 \*SU -712-469  
Antimicrobial textile material - 87683C/49
- MRSC 09.03.77 MARS LTD D13 (D12) = OE 7801-717  
Textured food product similar to meat in structure - 65287A/37
- MUND 16.05.77 MUNDIPHARMA AG A96 B04 D22 E19 = GB 1580-596  
Storage-stable iodophor germicide compsns. prepn. - 63439A/36



- \*NALC 15.05.79 NALCO FRANCE SARL A97 D15 J01 \*EP --19-552  
Waste waters purification from hydrocarbon - 86881C/49
- NATT 26.04.79 NAT STARCH & CHEM CORP A81 D22 G03 (A14 A96) = US 4234-662  
Pressure sensitive fusible adhesive prepn. - 62324C/36
- NATY 22.04.76 NABISCO INC D13 = CA 1089-697  
Non-sugar contg. coating compsn. for food prod. esp. cereals - 04416B/03
- NAUT- 06.06.77 NAUTRON CORP D15 #CA 1089-602  
Hydraulic attrition unit for marine toilet - 77335Y/43
- NELS/ 16.04.79 NELSON R W C03 D13 (D16) = SW 7907-262  
Stable liq. animal feed emulsions - 80119C/45
- NEST 23.12.77 SOC PROD NESTLE SA B07 D14 = US 4234-537  
Batch steriliser for particulate food or pharmaceutical prodn. - 22068B/12
- NEST 16.01.79 SOC PROD NESTLE SA D14 = FR 2449-626  
Distributor for pseudo spherical objects. esp. pastry dressings - 53787C/31
- NEST 18.04.79 SOC PROD NESTLE SA D13 = SW 8001-671  
Deacidified coffee extract prepn. - 79131C/45
- \*NEST 17.05.79 SOC PROD NESTLE SA A97 D13 E13 \*DT 3018-884  
Caffeine removal from oil solns. - 86634C/49
- \*NICE 19.09.78 NIPPON CEMENT KK A97 D15 E33 \*J5 5084-505  
Solid-liquid phase sepn. of mud water - 87066C/49
- \*NIEN- 10.04.79 NIPPON ENVIRO KOGYO D15 \*J5 5137-015  
Liq. filter e.g. for effluent - 87491C/49
- NIJH- 10.05.79 NIJHUIS G J MACH BV D12 X25 = EP --19-331  
Electrical stunning machine for beasts, to be slaughtered - 85616C/48
- NIJH- 10.05.79 NIJHUIS G J MACH BV D12 X25 = EP --19-332  
Electrical stunning of beasts esp. pigs for slaughter - 85617C/48
- NIJH- 10.05.79 NIJHUIS G J MACH BV D12 = EP --19-333  
Conveyor in abattoir stunning machine - 85614C/48
- NILL- 23.02.79 NILL SCHLOSS W D15 = FR 2449-654  
Floating surface barrier for settling ponds - 62691C/36
- \*NIPC 11.04.79 NIPPON CHEM IND KK D15 \*J5 5137-084  
Treatment of waste water contg. water glass etc. - 87521C/49
- NIRT 27.07.77 NISSO MASTER BUILDERS D17 E16 L02 M14 (E13 E33) = J8 0043-415  
Rust resistant compsn. for use in concrete - 25090B/13
- \*NISB 10.04.79 JAPAN TOBACCO & SALT PUB D18 E13 \*J5 5136-278  
N'-Formyl-anatabine extracted from tobacco leaves - 87402C/49
- \*NISR- 16.04.79 NIPPON SRS KK D15 \*J5 5137-010  
Separator for oil contaminated water - 87486C/49
- NISS 22.03.79 NISSHIN FLOUR MILL KK C03 D13 = BR 8001-644  
Strengthening agent for egg shell - 79854C/45
- NITY 04.04.75 NITTETU CHEM ENG D15 = DS 2614-021  
Regeneration and recovery of exhausted active carbon - 79695X/43
- \*NONB= 09.01.79 NONBLACK ZONE AGRIC D14 S03 T06 \*SU -728-830  
Fodder mixer monitoring appts. - 87812C/49
- NORD 30.03.76 NORDEN LAB INC B04 C03 D16 = GB 1580-844  
Feline viral rhinotracheitis vaccine prepn. - 46849Y/26
- NOVO 09.04.79 NOVO IND A/S D16 (D13) = DK 7901-456  
De-stabilisation of microbial rennin - 75330C/43
- NOVO 09.04.79 NOVO IND A/S D16 (D13) = DK 7901-457  
De-stabilisation of microbial rennin - 75331C/43
- NOVO 09.04.79 NOVO IND A/S D16 (D13) = DK 8001-222  
De-stabilisation of microbial rennin - 75330C/43
- NOVO 09.04.79 NOVO IND A/S D16 (D13) = DK 8001-428  
De-stabilisation of microbial rennin - 75331C/43
- \*OGAW/ 10.04.79 OGAWA H D13 \*J5 5135-571  
Improving taste and flavour of fish pastes - 87199C/49
- OLIN 21.05.79 OLIN CORP A97 D25 = DT 3019-075  
Novel alkoxy bis(tri)alkoxy silane polymer surfactants - 69594C/40
- ONOD 30.05.73 ONODA CEMENT KK D15 L02 = J8 0043-840  
Sludge contg. mineral oil treatment - 71269W/43
- OREA 26.06.75 L'OREAL SA D21 E24 = CA 1089-857  
Nitro couplers for keratinous fibre dyeing prepn. - 03916Y/03
- OREA 15.05.79 L'OREAL SA D21 = DT 3018-598  
Cosmetic compsn. for the hair, pref. a shampoo - 84341C/48
- OREA 15.05.79 L'OREAL SA D21 = DT 3018-599  
Cosmetic compsn. for the hair, pref. a shampoo - 84341C/48
- OREA 15.05.79 L'OREAL SA A96 D21 = DT 3018-600  
Cosmetic compsn. for washing and combing out hair - 84342C/48
- OREA 15.05.79 L'OREAL SA A96 D21 = NL 8002-755  
Cosmetic compsn. for washing and combing out hair - 84342C/48
- OREA 15.05.79 L'OREAL SA D21 = NL 8002-757  
Cosmetic compsn. for the hair, pref. a shampoo - 84341C/48
- \*OREA 25.05.79 L'OREAL SA A23 D21 E24 (A96) \*DT 3019-827  
Non-diffusing keratin fibre-dyeing polymer or mixt. - 86664C/49
- OREG- 31.03.76 OREGON STATE BOARD A97 B04 D16 S03 (S05) = CA 1089-748  
Inhibiting or identifying bacteria - 74416Y/42
- ORIO- 22.02.79 ORION-YHTYMA OY A96 B04 D16 S03 (S05) = FR 2449-894  
Antigen-antibody reaction system - 77685C/44
- \*PACK/ 12.11.76 PACKMAN E W D21 E19 \*US 4234-566  
Synergistic antiperspirant compsn. - 88270C/49
- PASE 28.07.77 PASSAVANTW MICHEL BACHER D15 = EP G000-467  
Sewage grid cleaning rake - 10245B/06
- PASS- 14.04.79 PASSAVANT-WERKE D15 = SW 8002-372  
Bar screen cleaning rake - 49934C/29
- \*PENT- 11.05.79 PENTAPHARM AG B05 D16 J04 \*EP --19-589  
Tripeptide derivs. with C-terminal chromophore gp. - 86899C/49
- PERF- 24.08.72 PERFECT LIBERTY KYO C03 D16 = J4 9036-885  
Tissue culture of potatoes without viral infections - 87582C/49
- \*PERF- 24.08.72 PERFECT LIBERTY KYO C03 D16 \*J8 0043-723  
Tissue culture of potatoes without viral infections - 87582C/49
- PFIZ 28.08.75 PFIZER INC B03 C02 D13 E13 (D23) = CA 1089-865  
(3)-Hydroxy gamma:pyrones prepn. - 11094Y/07
- PFIZ 02.08.76 PFIZER INC D23 E13 (D13) = OE 7704-404  
Gamma-pyrones prepn. esp. from furfuryl alcohol cpds. - 00033A/01
- PFRI 21.02.79 PFRIMMER & CO PHARM D22 = FR 2449-400  
Preservation of collagenous tissue for transplantation - 62630C/36
- PHAS 16.05.79 PHARMASCIENCE LABS D22 E16 = NL 8002-583  
Sterilisation or disinfection of appts. e.g. dairy equipment - 84716C/48
- PIEP/ 28.08.77 PIEPHOR F D15 #US 4234-424  
Treating used emulsion and industrial effluent - 10442B/06
- \*PILL 19.12.78 PILLSBURY CO D11 E19 F06 J09 (E37) \*J5 5104-648  
Susceptor appts. used in oven or furnace - 87081C/49
- \*PIST/ 26.05.79 PISTORM D11 X27 (X26) \*DT 2921-425  
Electric oven lamp fitting - 86555C/49
- \*PLIV 22.03.77 PLIVA PHARM & CHEM FAB B04 D16 \*OE 7801-804  
Mfg. peptidoglycan with repeating di:saccharide penta:peptide units - C/49
- \*PODH/ 08.12.77 PODHORSKY M D13 \*CS 7708-206  
Milk treatment and standardisation - C/49
- POKK 08.06.73 POLA CHEM IND KK A96 D21 = J8 0043-444  
Stable, nonirritant nontoxic cosmetic prepn. - 43452W/26
- \*POKK 10.04.79 POLA KASEI KOGYO KK D21 \*J5 5136-213  
Cosmetic compsn. - 87360C/49
- POLY- 21.02.79 POLYTHETICS INC A96 D22 (A25) = FR 2449-441  
Dentures with improved thermal deformation resistance - 64436C/37
- \*POPO/ 17.10.78 POPOV V V A11 D15 E32 \*SU -729-141  
Removal of zinc from viscose aq. effluent - 87907C/49
- POUL= 21.03.73 POULTRY PROC RES D18 G03 #DS 2314-128  
Gelatin prodn - 33270U/23
- PRIN- 10.04.68 PRINCE MFG CO INC D12 = NL -165-361  
Method and apparatus for removing meat - 54342R/31
- PROC 14.02.75 PROCTER & GAMBLE CO D25 E34 = CA 1089-737  
Additive for detergents - 66755X/36
- \*PROC 28.11.75 PROCTER & GAMBLE CO A97 D25 \*US 4234-627  
Granular laundry pre-soaking-washing compsns. - 88296C/49
- PROC 01.07.76 PROCTER & GAMBLE CO D25 E17 = CA 1089-872  
Heat exchanger cooling of neutralised sulphonation mixtures - 02054A/02
- PROC 13.08.76 PROCTER & GAMBLE CO D25 E19 = GB 1580-456  
Detergent compsn. - 37572A/21
- \*PROC 30.12.76 PROCTER & GAMBLE CO D13 \*US 4234-613  
Prepn. of non-decaffeinated Robusta coffee - 88290C/49
- PROC 09.02.79 PROCTER & GAMBLE CO B05 C01 D22 E12 = DK 8000-556  
Rare earth metal-surfactant cpds. - 79281C/45
- \*PROC 16.05.79 PROCTER & GAMBLE CO A97 D25 E19 (D16) \*EP --19-315  
Conc. builder free liq. detergent compsn. - 86789C/49
- \*PROT= 30.12.76 PROTEIN BIOSYNTH D16 \*SU -729-239  
Microorganisms e.g. yeast culture unit - 87998C/49
- \*PROT= 21.10.77 PROTEIN BIOSYNTH D16 \*SU -729-242  
Microorganisms e.g. growing culture unit - 88001C/49
- PROV- 12.04.79 PROVISTA CORP C03 D16 (D13) = DK 8001-574  
Prodn. of single cell protein material - 79213C/45
- PURD 02.10.78 PURDUE RESEARCH FOUNDATI A96 B07 D13 = DK 8002-330  
Film-coating foods or pharmaceuticals with polymer - 27285C/16
- \*PURF 28.02.79 PURDUE FREDERICK CO A89 D16 J01 S03 \*DT 3007-869  
Chromatographic carrier particles with thin surface coating - 86573C/49
- RALS 29.12.76 RALSTON PURINA CO D13 = DS 2758-515  
Reduction of combustion prod. residues in dried prods. - 19591A/10
- \*RALS 11.10.77 RALSTON PURINA CO D12 \*US 4234-609  
Imitation mollusc meat prod. - 88287C/49
- \*RALS 18.12.78 RALSTON PURINA CO C03 D13 \*US 4234-604  
Ruminant feed intake limiting compsn. - 88285C/49
- RASA 30.03.73 RASA KOKYO KK D15 = J4 9122-150  
Appts. for treating waste water from stone crushing plant - 87563C/49
- \*RASA 30.03.73 RASA KOGYO KK D15 \*J8 0043-372  
Appts. for treating waste water from stone crushing plant - 87563C/49
- RATH/ 00.00.79 RATHSAM M O A D15 = BR 7901-253  
Air diffuser for active sludge treatment - C/42
- \*RATR 11.10.78 RAILWAY TRANSPORT INST D15 \*SU -729-129  
Bacterial decontamination of potable water - 87895C/49



- \*REGC 14.12.76 UNIV OF CALIFORNIA B04 D16 J04 \*US 4234-681  
Biochemical analytical prods. in rod shape - 88320C/49
- REPS 21.02.79 REPUBLIC STEEL CORP D15 H09 = FR 2449-653  
Coking plant waste water purification - 64417C/37
- RESE 04.01.78 RESEARCH CORP B04 D16 J04 S03 (S05) = EP --18-967  
Prod. of reagents for detecting prostatic cancer - 53867B/29
- \*RESE 02.04.79 RESEARCH CORP B04 D16 J04 S03 \*GB 2047-889  
Serological testing for Chlamydia trachomatis antibodies - 87014C/49
- RETO 11.04.79 RJR ARCHER INC A97 D18 G03 (A81) = DK 8001-518  
Tipping paper for air Ventilated cigarette - 79202C/45
- \*REZN/ 19.01.76 REZNIKOV I G D25 E17 \*SU -729-195  
Prod. of surface active agents - 87958C/49
- \*RHEO- 24.05.79 RHEON AUTOM MAC D11 \*DT 3019-890  
Dough pieces alignment - 86678C/49
- RHHU 28.01.71 RHEINSTAHL AG A97 D15 = J4 7017-268  
Conditioning and de watering of effluent sludge - 53904T/34
- RHHU 28.01.71 RHEINSTAHL AG A97 D15 = J8 0043-839  
Conditioning and de watering of effluent sludge - 53904T/34
- RHON 22.08.75 RHONE-POULENC INDUSTRIES A13 B04 D16 (A96) = NL -165-472  
Stable latex of styrene polymer with terminal thio-aniline gps. - 12782Y/08
- RHON 18.04.79 RHONE-POULENC INDUSTRIES B04 D16 = NO 8001-114  
Immunostimulant 41200RP - 77067C/44
- RHON 18.04.79 RHONE-POULENC INDUSTRIES B04 D16 = SW 8002-898  
Immunostimulant 41200RP - 77067C/44
- RICH- 24.01.78 RICH PRODUCTS CORP D13 = US 4234-611  
Food stabilised against microbial decay - 57151A/32
- RICT 21.03.79 RICHTER GEDEON VEGY D15 J08 = BR 8001-712  
Dryer-granulator for heat-sensitive organic materials e.g. biological - 71595C/41
- RICT 21.03.79 RICHTER GEDEON VEGY D15 J08 = BR 8001-716  
Heating or cooling plant for wet solids partic. pulpy materials - 71596C/41
- RICT 21.03.79 RICHTER GEDEON VEGY D12 (D15) = BR 8001-719  
Removal of solids from waste liquids e.g. from slaughter houses - 72785C/41
- \*RIGH/ 14.05.79 RIGHETTIG D15 \*BR 7902-949  
Waste water purification system for natural or artificial pools - C/49
- RIKV 16.04.79 RIKEN VITAMIN OIL KK D13 = J5 5137-035  
Emulsifier prepn. for improving starch-contg. food quality - 79089C/45
- \*ROBE/ 23.02.79 ROBERTIA C03 D13 \*FR 2449-409  
Acceleration of animal growth - 86913C/49
- ROHG 28.04.79 ROHM GMBH D18 = GB 2047-738  
Simultaneous swelling and unhairing of hides - 82713C/47
- ROHT 12.03.77 ROHTO PHARM CO A97 B07 D21 (A97) = US 4234-450  
Mouldable emulsion comprising oily and aq. components - 80920A/45
- \*RURL/ 15.01.79 RURLV D15 \*CS 7900-318  
Purificn. of ammonium cpds. contg. aq. effluents - C/49
- SAGA 10.04.79 SAGAMI CHEM RES CENTER B05 D13 E14 = GB 2047-711  
Alpha-L-aspartyl-L-phenylalanine ester sweetening agents purificn. - 77325C/44
- SAKA 26.02.79 OTSUKA PHARM KK B02 C02 D22 E13 = FR 2449-682  
Antimicrobial 1,4-di:hydro-4-oxo-quinoline-3 carboxylic acid derivs. - 62781C/36
- \*\*SAKA/ 29.04.76 SAKAKIBARA S D11 \*US 4234-612  
Continuous frying of noodles to remove water - 88289C/49
- \*SAKA/ 01.12.78 SAKAIS D15 J01 \*J5 5075-719  
Filter for separating fluid into components - 87030C/49
- SANY 20.02.79 SANKYO KK B03 D16 = FR 2449-685  
Hypocholesterolaemic agent monacoline K - 62276C/36
- SANY 11.05.79 SANKYO KK B03 D16 = DT 3006-215  
Monacoline K prepd. by cultivation of Monascus strains - 69578C/40
- SARS 13.04.78 SARTORIUS GMBH A88 D15 E36 J01 (A11) = US 4234-528  
Asymmetric cellulose hydrate ultrafiltration membranes - 77583B/43
- SATA- 19.03.79 SATAKE ENG KK D13 = BR 8001-581  
Rice with super-high polish - 71821C/41
- SCHD 15.05.79 SCHERING AG B01 D16 = DT 2919-984  
12-Alpha-hydroxy steroid prodn. by microbiological hydroxylation - 86728C/49
- SCHD 15.05.79 SCHERING AG B01 D16 \*EP --19-162  
12-Alpha-hydroxy steroid prodn. by microbiological hydroxylation - 86728C/49
- \*SCHE 22.01.70 SCHERING CORP B02 D16 \*US 4234-690  
Prepn. of antibacterial rosaramicin - 88325C/49
- \*SCHE 25.06.79 SCHERING CORP B03 D16 \*US 4234-685  
3-N-methyl and 3-N-methyl-4-C-methyl amino:glycoside antibiotics - 88323C/49
- SCMZ 03.12.76 SCM CORP D11 E17 \*US 4234-606  
Prepn. of stabilised fluid shortenings for yeast raised prods. - 88286C/49
- SCMZ 05.06.78 SCM CORP D13 = US 4234-618  
Compsn. contg. confectionery hard butter - 89838B/50
- \*SEIT 11.05.79 SEITETSU KAGAKU KK D18 E13 (E31 E33) \*EP --19-435  
Pickling hides before tanning in presence of urotropin - 86838C/49
- SENP- 27.01.77 SENPOKU KANKYO SEIB D15 = J5 3093-476  
Pressing and dewatering sludge cakes - 87595C/49
- \*SENP- 27.01.77 SENPOKU KANKYO SEIB D15 \*J8 0043-810  
Pressing and dewatering sludge cakes - 87595C/49
- SERS- 01.12.78 SERSEN SOC ETUD REC D15 J03 = FR 2449-656  
Water desalination process by electrochemical oxidn. of salt - 45094C/25
- \*SEVE- 04.10.76 SEVEN-H CORP D13 \*US 4234-614  
Production of masa from grain - 88291C/49
- \*SHER- 27.06.79 SHEREX CHEM INC D25 E16 (E14) \*BE -884-057  
Foam stabiliser for foam contg. alkyl benzene sulphonate(s) - 86394C/49
- \*SHIB/ 09.04.79 SHIBATA K C03 D13 \*J5 5135-555  
Fishing bait - 87197C/49
- SHIO 06.04.79 SHIONOGI KK B02 C02 D16 = J5 5136-282  
Antibiotic PA-31088-IV - 77431C/44
- SHIO 13.04.79 SHIONOGI KK B04 D16 = DK 8001-556  
B30-threonine insulin prepn. - 79246C/45
- SHIO 13.04.79 SHIONOGI KK B04 D16 = NO 8001-048  
B30-threonine insulin prepn. - 79246C/45
- SHIS 30.09.77 SHISEIDO KK A96 D21 = J8 0043-445  
Manicure compsn. - 43117B/23
- \*SHOS= 25.09.78 SHOSTKA SVEMA MFG D14 X27 \*SU -724-115  
Gelatin broth cooker with steam-jacketed body - 87727C/49
- \*SHOW 09.04.79 SHOWA DENKO KK D16 (D13) \*J5 5135-587  
Culturing Methylomonas SD-13 - 87201C/49
- \*SHOW- 11.04.79 SHOWA KOKI KK D15 G04 M14 \*J5 5135-187  
Floor cleaning agent prodn. from aluminium sludge - 87181C/49
- \*SIAG= 14.08.78 SIBE BR AGRIC SCI D14 \*SU -718-676  
Fodder drying drum loader - 87705C/49
- SINA- 18.05.79 SINATIN SA D23 (D16) = DT 3018-893  
Prepn. of oak flavour used for ageing alcoholic prods. - 64236C/37
- SINA- 18.05.79 SINATIN SA D23 (D16) = NL 8002-794  
Prepn. of oak flavour used for ageing alcoholic prods. - 64236C/37
- SIST- 18.05.79 SISTEMAS NATURALES D23 (D16) = DT 3018-893  
Prepn. of oak flavour used for ageing alcoholic prods. - 64236C/37
- \*SKRI/ 16.03.77 SKRIPNIK V A D15 E36 J03 \*SU -712-399  
Chlorine caustic soda prodn. aq. waste purificn. - 87678C/49
- SLOV- 17.04.79 SLOVENSKA AKAD VIED C02 D16 = GB 2047-699  
5-Acetoxy-2-acetoxymethyl-4-pyrone insecticide - 79138C/45
- \*SMIR/ 24.07.78 SMIRNOVA N S D15 J08 \*SU -724-451  
Removing scale from tubular heat-exchange appts. - 87764C/49
- SNOW 17.09.71 SNOW BRAND MILK PRODUCTS D13 = J4 8036-358  
Mfg. easily soluble powdered soybean milk, free from soybean odour - 87586C/49
- \*SNOW 17.09.71 SNOW BRAND MILK PRODUCTS D13 \*J8 0043-740  
Mfg. easily soluble powdered soybean milk, free from soybean odour - 87586C/49
- SNOW 27.12.71 SNOW BRAND MILK PRODUCTS D13 = J4 8068-762  
Soybean curd prepn. - 87587C/49
- \*SNOW 27.12.71 SNOW BRAND MILK PRODUCTS D13 \*J8 0043-741  
Soybean curd prepn. - 87587C/49
- \*SOBO/ 26.05.79 SOBOTTA H D21 \*DT 2921-863  
Pumice stone substitute, esp. for cosmetic use - 86563C/49
- SOCH 15.05.79 SOC CHIM ORG BIOL AEC B05 D16 E19 = DT 3018-584  
D-alpha-aminoacid prepn. by enzymatic hydrolysis of hydantoin - 84365C/48
- SOCH 15.05.79 SOC CHIM ORG BIOL AEC B05 D16 E19 = NL 8002-627  
D-alpha-aminoacid prepn. by enzymatic hydrolysis of hydantoin - 84365C/48
- \*SOMA- 16.05.79 SOMAT CORP D15 \*DT 3010-902  
Refuse shredder - 86575C/49
- SOUT- 21.12.77 SOUTHLAND CORP D13 E17 (D21 E12) = OE 7808-902  
Easily dispersible powdered hydrated emulsifiers - 54385B/29
- SPEE/ 01.06.76 SPEECE R E D15 J02 = J8 0043-376  
Dissolving gas in liquid esp. oxygenation of aq. effluent - 88473Y/50
- \*SPIT/ 22.05.79 SPITZER J G D21 \*EP --19-301  
Hair conditioner contg. alkanol soluble soybean lecithin fraction - 86783C/49
- STAH/ 27.03.79 STAHLER T D15 = BR 8001-806  
Sewage aeration basin - 86444C/49
- \*STAH/ 27.03.79 STAHLER T D15 \*DT 2911-975  
Sewage aeration basin - 86444C/49
- STAH/ 27.03.79 STAHLER T D15 = EP --17-064  
Sewage aeration basin - 86444C/49
- STAL 20.06.77 STALEY A E MFG CO A11 C03 D22 F06 (A87 A97) = CA 1090-027  
Water absorbent starch copolymer contg. hydrophilic gps. - 70620A/39
- STAL 26.12.78 STALEY A E MFG CO D13 = US 4234-620  
Increasing water solubility of vegetable protein - 50263C/29
- STAM 09.05.79 STAMICARBON BV A41 C04 D15 E16 = EP --19-326  
Purification of urea-contg. effluent water - 85611C/48
- \*STAU 30.03.79 STAUFFER CHEMICAL CO B03 D21 E11 \*US 4234-568  
Inhibiting the formation of dental plaque - 88272C/49
- \*STAU 10.05.79 STAUFFER CHEMICAL CO D13 \*EP --19-415  
Acidic beverage fortified with whey protein - 86829C/49



- STBR 03.11.75 STANDARD BRANDS INC D16 (D11) = CA 1089-704  
Acid treating yeast to reduce bacteria content, then neutralising - 14531Y/08
- STEM 18.05.79 STEINMULLER L & C GMBH D15 J01 = NL 8002-862  
Pretreatment of water for reverse osmosis - 84671C/48
- STER 06.08.76 STERLING DRUG INC B03 D22 E13 G02 (B07 D15 D21 G03) = CA 1089-861  
Heterocyclic methylene-bis-aza-oxo- and -aza-thio cpds. - 12498A/07
- STER 06.09.77 STERLING DRUG INC B05 C03 D22 (B03 C02) = CA 1089-864  
4-Benzyl or cyclohexyl or 2-furfuryl heptane-3,5 di:one derivs. - 18014B/10
- \*STER 22.05.79 STERLING DRUG INC D15 \*EP --19-211  
Purification of aqueous fluid - 86746C/49
- \*STRA- 19.05.79 GES STRAHLEN & UMWE D14 K08 S03 (S05) \*DT 2920-364  
Distortion and contact free determ. of foodstuff fat concn. factor - 86494C/49
- STRI 09.04.79 SRI INTERNATIONAL D16 (D17) = GB 2047-710  
Cellulase prodn. by *Thielavia terrestris* cultivation - 75619C/43
- STUD 04.08.76 STUDIENGES KOHLE MBH D13 = CA 1089-699  
Decaffeination of coffee - 06375A/04
- \*STUD/ 08.06.63 STUDNICY J D15 \*CS 6303-318  
Sediment-contg. industrial aq. effluents purificn. - C/49
- \*SUBI/ 27.12.78 SUBIK J D16 \*CS 7808-905  
Microorganisms deactivation - C/49
- SUGI/ 24.02.79 SUGIURA E D15 = FR 2449-472  
Aeration system for effluent treatment plants - 64456C/37
- SULL 02.08.77 SULLIVAN SYST INC D23 #GB 1580-664  
Steam refining vegetable and animal oils - 49603A/27
- \*SULZ 21.05.79 GEBRUDER SULZER AG D15 \*EP --19-055  
Water treatment filter - 86697C/49
- SUMO 23.07.73 SUMITOMO CHEMICAL KK A97 D15 (A21) = J5 0040-488  
Treatment of water contg. organic waste - 87562C/49
- \*SUMO 23.07.73 SUMITOMO CHEMICAL KK A97 D15 (A21) \*J8 0043-370  
Treatment of water contg. organic waste - 87562C/49
- SUMO 22.11.73 SUMITOMO CHEMICAL KK A88 D15 J01 (A23) = J8 0043-362  
Block copolymer films for sepn. use, e.g. desalination - 87395X/47
- SUMO 30.10.75 SUMITOMO CHEMICAL KK A88 D15 J01 (A14 A35 D13) = J8 0043-363  
Semi-permeable membranes of acrylonitrile polymer - 34779Y/20
- SUND/ 23.07.76 SUNDBERG H M D15 = GB 1580-659  
Domestic septic tank - 08677A/05
- SUNZ 17.07.78 SUN STAR HAMIGAKI K D21 = J8 0044-043  
Compsn. for removing skin discolouration - 19259C/11
- SVME- 10.05.77 SVENSKA MEJERIERNAS D13 = CA 1089-698  
Desalting whey using anionic and cationic exchangers - 65363A/37
- SYNT 10.04.79 SYVA CO A96 B04 D16 = J5 5135-598  
Macromolecular cpds. useful as glycosidase substrates - 83031C/47
- TAKA/ 20.02.78 TAKAHASHI K D21 = EP --18-999  
Sheet of starch material for fixing dentures - 75273B/41
- TAKE 25.09.69 TAKEDA CHEMICAL IND KK D16 E17 = NL -165-450  
Citric acid extraction procedure - 23136S/13
- TAKE 24.03.78 TAKEDA CHEMICAL IND KK B02 C02 D16 = OE 7902-191  
20-Demethyl-maytansinoid derivs. - 72173B/40
- TAKE/ 19.08.77 TAKEUCHI S D11 = US 4234-605  
Bread prodn. in kneading and baking oven - 16291B/09
- \*TAKG 09.04.79 TAKI KAGAKU KK D16 \*J5 5135-592  
Immobilisation of enzyme or mycelium - 87204C/49
- TAKS 26.11.71 TAKASAGO PERFUMERY KK D13 = J4 8058-170  
Flavoured milk prod. prepn. - 87588C/49
- \*TAKS 26.11.71 TAKASAGO PERFUMERY KK D13 \*J8 0043-742  
Flavoured milk prod. prepn. - 87588C/49
- TAKS 26.02.79 TAKASAGO PERFUMERY KK A60 D23 E17 = FR 2449-669  
Prepn. of brassylic acid di:ester and precursor - 62780C/36
- \*TAPO= 02.06.76 TALL POLY D15 (D13) \*SU -729-137  
Purification of milk processing aq. effluent - 87903C/49
- TATE 14.03.77 TATE & LYLE LTD D17 (D16) = US 4234-688  
Polysaccharide(s) prepd. by culture of *Azotobacter vinelandii* - 51675A/29
- \*TATN= 27.04.78 TATNEFT PROD ASSOC D15 J01 \*SU -724-166  
Waste water and crude oil emulsion separator - 87737C/49
- \*TEAI= 17.02.77 TEA IND PROD ASSN D13 \*SU -712-071  
Tea concentrate prodn. from low-grade materials - 87671C/49
- TEIJ 08.05.73 TEIJIN KK A88 D15 J01 (A26) = J8 0043-361  
Selective permeable membranes for reverse osmosis - 54662X/29
- \*TEMP- 10.12.79 TEMPO SANYS A96 D22 \*BE -883-873  
Sterilisable surgical tampon with absorbent pad and waterproof backing - 86389C/49
- TOHR 30.03.79 TOHO CHEM IND LTD D25 E16 = J5 5136-268  
Antibacterial surfactant - 77014C/43
- \*TOKE 11.04.79 TOKYO SHIBAURA ELEC LTD D15 E36 J03 \*J5 5136-103  
Ozone feed rate control - 87293C/49
- \*TOKU 16.04.79 TOKUYAMA SODA KK A97 D17 J01 \*J5 5137-008  
Sepn. of acid or base from soln. by diffusion dialysis - 87484C/49
- TOMK/ 06.04.79 TOMKA B C03 D13 = BE -883-372  
Prodn. of phosphorus- and nitrogen-contg. animal feed additives - 76328C/43
- TOWN 25.05.79 TOWNSEND ENG CO D12 = DT 3019-587  
Injecting fluid esp. brine into meat and fish for curing - 69605C/40
- \*TOWN 06.06.79 TOWNSEND ENG CO D12 \*US 4233-709  
Cutting sausage links suspended from slotted hook conveyor - 88073C/49
- \*TOXO 12.04.79 TOYO SEIKAN KAISHA D15 E13 \*J5 5137-086  
Drinking water stored in metal or plastic containers - 87523C/49
- \*TOXW 06.04.79 TOYO INK MFG KK D13 \*J5 5135-542  
Prevention of picked vegetable degeneration - 87191C/49
- TOYJ 03.04.79 TOYO SODA MFG KK B05 D16 = J5 5135-595  
Di:peptide prodn. in presence of immobilised protease - 73469C/42
- TOYJ 03.04.79 TOYO SODA MFG KK B05 D16 = J5 5135-595  
Di:peptide prodn. in presence of immobilised protease - 73469C/42
- TOYJ 10.04.79 TOYO SODA MFG KK B05 D13 E14 = GB 2047-711  
Alpha-L-aspartyl-L-phenylalanine ester sweetening agents purificn. - 77325C/44
- TOYJ 10.04.79 TOYO SODA MFG KK B05 D13 E14 = J5 5136-257  
Alpha-L-aspartyl-L-phenylalanine ester sweetening agents purificn. - 77325C/44
- \*TUCH/ 00.00.78 TUCHENHAGEN O D13 J01 \*DT 2913-242  
Milk degassing centrifuge - 86445C/49
- \*UHEA= 30.12.76 UKR HEAT PHYS TECH D16 \*SU -729-239  
Microorganisms e.g. yeast culture unit - 87998C/49
- UKSO- 13.11.70 UK SEC SOCIAL SERVI B04 D16 = J8 0043-758  
L-asparaginase prodn - 33793T/21
- UNCH- 16.08.78 UTD CHEM CORP D21 = GB 2047-533  
Anhydrous multi-purpose cosmetic compsn. - 23708C/13
- UNIC 25.08.77 UNION CARBIDE CORP D22 = CA 1089-700  
Shrink wrapped stick of concertina folded tubular sausage casing - 15999B/09
- UNIC 18.04.79 UNION CARBIDE CORP D15 = NO 8001-100  
Aeration of liquid-solid mixture - 79266C/45
- UNIC- 25.01.79 UNICLAIR B04 D16 = J5 5136-231  
Pichia fermentans cells or insoluble glucan extracts - 64662C/37
- UNIL 03.03.75 UNILEVER NV A97 D25 E11 = OE 7601-467  
Detergent compsn with improved anti-greying properties - 72487X/39
- UNIL 24.05.76 UNILEVER NV A97 D25 E12 (A18 E34) = OE 7703-673  
Heterogeneous liquid detergent compsns. - 84672Y/48
- UNIL 24.06.76 UNILEVER NV D25 = OE 7704-364  
Liquid detergent compsn. stable at low temperature - 84556Y/47
- UNIL 01.11.76 UNILEVER NV D25 E19 (E36) = OE 7707-763  
Storage stabilised liq. enzymatic detergents - 33415A/19
- UNIL 17.03.77 UNILEVER NV D13 = OE 7801-812  
Prepn. of composite foods, esp. sweets such as peach melba - 67073A/38
- UNIL 31.05.78 UNILEVER NV A97 C03 D13 = OE 7903-873  
Stable liquid animal feed, e.g. milk substitute for calves - 87598B/49
- UNIL 08.12.78 UNILEVER NV D11 = GB 2047-614  
Moulded wafer cone prepn. - 45084C/25
- UNIL 27.03.79 UNILEVER NV A96 D21 E19 = BR 8001-822  
Aq. shampoo providing good conditioning effects - 83027C/47
- \*UNIL 23.04.79 UNILEVER LTD A96 D22 \*EP --19-371  
Absorbent material for immobilising blood - 86808C/49
- \*UNIL 09.05.79 UNILEVER LTD A97 D25 \*EP --19-413  
Coloured speckled detergent for use in washing powder - 86827C/49
- UNIL 11.05.79 UNILEVER LTD D13 = EP --19-441  
Ice confectionery mouldings extraction - 84812C/48
- \*UNIL 17.05.79 UNILEVER LTD A97 D25 E34 \*EP --19-470  
Nonionic surfactant compsn. contg. charge transfer agent - 86853C/49
- \*UNIL 21.05.79 UNILEVER NV A87 D25 E19 F06 \*BE -883-414  
Conc., aq. liq. fabric softeners - 86374C/49
- \*UNIL 21.05.79 UNILEVER LTD A97 D25 E14 (A12) \*EP --19-484  
Nonionic surfactant, esp. spray dried detergent, compsn. - 86862C/49
- UNVO 27.09.75 UOP INC D15 J01 #DS 2543-297  
Cleaning membrane exchange device - 72317W/43
- UNVO 08.03.77 UOP INC C04 D15 = CA 1090-016  
Drying and extrusion of organic waste to form e.g. fertiliser - 66696A/37
- \*URFO 12.05.74 URALS FORESTRY INST A97 D15 \*SU -712-395  
Treatment of industrial hard water for boilers etc. - 87677C/49
- USAT 27.09.77 US DEPT OF ENERGY D15 K07 = CA 1090-018  
Removing plutonium from aq. soln. - 78241A/43
- \*USAT 30.03.79 US DEPT OF ENERGY D15 \*US 4234-423  
Wet air oxidn. system for waste waters - 88205C/49
- USDC 20.11.78 US SEC OF COMMERCE D16 = DK 8002-211  
Mutant strain of an Ascomycetes fungus - 41485C/23
- \*UYCH= 17.04.78 CHERNOVITSK UNIV A14 D15 E16 \*SU -688-442  
Removal of emulsified PVC from aq. effluent - 87669C/49
- UYFL- 09.01.79 UNIV OF FLORIDA D21 L01 = DT 2949-619  
Glass compsn. for forming glass ceramic - 16369C/09
- VDYK- 23.02.79 VAN DYK & CO INC D21 E13 = FR 2449-445  
Sun-filtering cosmetic compsn. - 64384C/37



- \* VEMA- 26.05.79 VEMAG VERDENER MASC D12 T06 \*DT 2921-427  
Intermittent sausage skin filling - 86556C/49
- \* VERZ- 20.04.79 VERZINKEREI ZUG AG D11 X25 \*DT 3015-048  
Flush fitting baking oven - 86580C/49
- VERZ- 20.04.79 VERZINKEREI ZUG AG D11 X25 = NL 8002-264  
Flush fitting baking oven - 86580C/49
- VGIM- 25.01.71 PROBAT W VON GIMBOR D13 = DS 2103-281  
Appts for treatment by heat, cold, etc - 60493W/37
- \* VODO= 23.10.78 VODOKANAL LENGORISPOLKOM D15 X25 \*SU -729-134  
Biological aq. effluent purificn. - 87900C/49
- \* VOTE= 04.01.77 VORON TECHNOL INST D16 \*SU -729-243  
Malting box unloading unit - 88002C/49

- WACK 02.05.78 WACKER CHEMIE GMBH D15 E32 J03 = US 4234-422  
Mercury and its cpds. removal from waste industrial water - 84527B/47
- WAFI- 30.09.74 WAFILIN BV D15 F04 J01 = NL -165-385  
Non-woven osmosis tube - 07852X/05
- WALK- 16.05.77 WALKER PROCESS CORP D15 = CA 1090-017  
Rotor for waste water treatment - 70591A/39
- \* WEBE- 26.07.79 WEBER W ING GMBH D16 \*BE -884-486  
Recovering energy produced by bacterial decomposition in rubbish dump - 86406C/49
- WEDA- 11.04.79 WEDA-DAMMANN & WEST C03 D13 = DK 8001-410  
Pumpable cattle fodder preparation - 77211C/44
- WELA 29.03.79 WELLA AG D21 E19 = GB 2047-764  
Permanently shaped hair rinsing or strengthening compsn. - 73722C/42
- WITC 01.05.70 WITCO CHEM CORP D25 #NL -165-497  
Stable liquid detergent composition contg - 88297R/47
- \* WOHR/ 29.06.79 WOHR W D22 \*OE 7904-582  
Deep freezing blood plasma - C/49
- WOLF/ 10.04.71 WOLFGANG P R B04 C03 D16 = J4 7030-828  
Prepn. of vaccine for Marek's disease in fowl - 87604C/49
- \* WOLF/ 10.04.71 WOLFGANG P R B04 C03 D16 \*J8 0044-047  
Prepn. of vaccine for Marek's disease in fowl - 87604C/49
- \* WSER 18.05.79 WESER AG D14 \*DT 2920-083  
Frozen food cutting press chamber - 86482C/49

- YAMA- 21.02.79 YAMATO SETSUBI KOJI D15 = FR 2449-657  
Treatment of effluent water streams - 66388C/38
- \* YAMA- 11.04.79 YAMAZAKI SEIPAN KK D13 \*J5 5135-549  
Rice flour dough for Japanese confections - 87194C/49
- YAMS 27.02.78 YAMASA SHOYU KK B04 D16 (D13) = US 4234-691  
L-Lysine-alpha-oxidase prodn. from Trichoderma viride - 64923B/36
- \* YURE/ 03.10.78 YUREV BT D15 \*SU -729-142  
Waste water treatment plant - 87908C/49

- ZAID 26.03.71 ZH BISEIBUTSU KAGAKU KEN B04 D16 = NL -165-501  
Pepstatins as anti ulcer agents - 64041T/40
- ZAMI 07.02.77 ZAMBELETTI DR L SPA B05 C03 D22 = DS 2739-661  
Benzalkonium chloro-iodide - 17637A/10
- \* ZEME/ 24.06.77 ZEMEK J D16 \*CS 7704-191  
Cellulose degrading enzymes prodn. - C/49
- \* ZEME/ 24.06.77 ZEMEK J D16 \*CS 7704-192  
Alpha-Amylase prodn. - C/49
- \* ZEME/ 19.07.77 ZEMEK J D16 \*CS 7704-771  
Cellulose degrading enzymes prepn. - C/49
- \* ZEME/ 05.06.78 ZEMEK J D16 \*CS 7804-469  
Alpha-Amylase prepn. - C/49
- \* ZEME/ 13.11.78 ZEMEK J D16 \*CS 7807-359  
Alpha-Amylase enzyme prepn. - C/49
- ZETA- 21.05.79 ZETA-ESPACIAL SA D13 = DT 3018-909  
Mfr. of gasified sweets from a sugar syrup - 64232C/37
- ZINI 19.07.68 GRILLO WERKE AG D21 E12 = NL -165-375  
Odour binding fungicidal salts of unsaturated - 00178S/01
- ZLPA- 08.06.77 Z-L LTD B01 D16 = US 4234-577  
Fermentative prodn. of ergostadiene-tri:ol cpds. - 72780C/41











79842-Y D	J5 4036-266 B17+	15358-A AD	42502-A AD	FR 2381-518 A48	76264-A ABDJ	04957-B DE	29978-B DEJ
FR 2337-576 Y45+	J7 9020-500 B33+	NL 7708-374 A08	DT 2753-443 A24	CH -608-957 B12	BE -866-096 A43	J5 3139-753 B03	DT 2840-791 B
GB 1580-733 C49+	CS 7704-705 C32+	DT 2634-535 A12	J5 3072-868 A31	GB 1565-785 C17	US 4102-996 A44	J8 0043-746 C49	GB 2007-203 B
82885-Y D	CS 7803-705 C32+	FR 2360-261 A18	FR 2372-600 A36	US 4234-310 C49	DT 2816-864 A44	08036-B AD	J5 4047-885 B
BE -854-524 Y47	CS 7803-706 C32+	OE 7705-207 B09	GB 1570-793 C28	65287-A D	NL 7803-625 A45	BE -869-385 B05	FR 2403-816 B
NL 7705-172 Y48	CS 7901-536 C32	DS 2634-535 C49	CA 1089-701 C49	BE -864-596 A37	DK 7801-711 A49	NL 7807-828 B07	US 4234-460 C
DT 2721-723 Y49	CS 7901-537 C32	17637-A BCD	47459-A CDH	DT 2810-009 A38	J5 3133-628 B01	FR 2398-476 B18	32043-B D
SW 7705-412 Y51	OE 7704-404 C49+	BE -858-321 A10	US 4087-936 A26	NL 7802-598 A39	FR 2387-656 B04	OE 7805-547 C49	GB 2005-526 B
DK 7702-068 A06	02054-A DE	DT 2739-661 A33	CA 1089-790 C49	SW 7802-649 A42	US 4234-564 C49+	10245-B D	J5 4062-206 B
FR 2351-058 A09	BE -856-307 A02	NL 7711-446 A34	49603-A D	DK 7801-041 A43	77245-A BCD	EP -467 B06	CA 1089-849 C
ZA 7702-751 A20	DT 2728-973 A03	SW 7714-558 A38	US 4089-880 A27+	NO 7800-640 A44	J5 3107-412 A43	DT 2734-119 B07	37609-B CD
US 4093-539 A31	FR 2356-635 A14	J5 3098-930 A40	GB 1580-664 C49+	J5 3113-056 A45	J8 0043-451 C49	DS 2734-119 C17	GB 2007-076 B
CA 1067-219 B50	J5 3025-286 A16	FR 2379-508 A45	51675-A D	FR 2382-865 A50	78241-A DK	OE 7804-296 C23	ZA 7805-845 B
OE 7703-429 C23	US 4153-625 B21	OE 7707-355 B04	BE -864-823 A29	PT -67-742 B14	US 4120-933 A43	EP G000-467 C49	US 4234-608 C
GB 1580-395 C49	CA 1089-872 C49	GB 1546-295 B21	DT 2809-777 A39	OE 7801-717 C49	DT 2842-050 B15	10442-B D	43117-B AD
84556-Y D	03522-A ADFH	US 4192-894 C12	NL 7802-767 A40	65363-A D	GB 2004-857 B15	GB 1540-172 B06	J5 4052-736 B
US 4058-473 Y47	NL 7706-339 A02	DS 2739-661 C49	SW 7802-840 A43	BE -866-763 A37	J5 4055-299 B24	US 4234-424 C49+	J8 0043-445 C
BE -855-891 A01	J5 2153-888 A06	19591-A D	DK 7801-112 A44	NL 7804-931 A48	FR 2403-978 B26	15999-B D	47154-B BDE
DT 2728-356 A02	DK 7702-621 A11	US 4075-358 A10	NO 7800-862 A44	SW 7705-424 A51	CA 1090-018 C49	BE -869-953 B09	BE -872-914 B
NL 7706-574 A03	BR 7703-739 A18	BE -862-469 A18	J5 3113-854 A45	DT 2819-995 A51	78939-A D	DT 2836-818 B10	GB 2010-815 B
SW 7707-342 A05	CA 1089-841 C49	DT 2758-515 A28	DK 7801-959 B01	DK 7801-959 B01	J5 3109-967 A44	GB 2003-015 B10	US 4187-298 C
J5 3000-209 A07	06375-A D	NL 7713-201 A29	NO 7801-650 B01	NO 7801-650 B01	J8 0043-738 C49	NL 7808-750 B11	DT 2920-033 C
NO 7702-182 A07	BE -856-955 A04+	SW 7713-453 A32	SF 7800-797 A46	SF 7801-401 B04	79920-A D	SW 7808-967 B14	52996-B CD
DK 7702-796 A11	DT 2732-103 A07+	DK 7705-718 A36	FR 2384-020 A51	J5 4002-371 B07	US 4103-167 A44	BR 7805-478 B19	EP -2-893 B
FR 2355-910 A14	NL 7707-923 A08+	FR 2376-386 A40	GB 1548-078 B27	FR 2390-106 B07	DT 2825-672 B51+	FR 2401-075 B22	GB 2012-167 B
GB 1538-845 B04	SW 7708-384 A11+	GB 1566-667 C19	DS 2809-777 C13	US 4159-350 B28	NO 7801-836 C04+	SF 7802-583 B22	DK 7805-742 B
CA 1081-576 C31	NO 7702-566 A13+	DS 2758-515 C49	US 4234-688 C49	OE 7803-358 C02	DK 7802-525 C06+	CA 1089-700 C49	NO 7804-326 B
OE 7704-364 C49	J5 3018-772 A14+	19762-A DE	51690-A D	CA 1089-698 C49	SW 7806-771 C06+	16291-B D	PT -68-975 B
84672-Y ADE	DK 7703-207 A15+	DS 2700-568 A11	BE -864-903 A29	66696-A CD	SF 7801-848 C09+	DT 2836-241 B09	BE -874-675 B
BE -854-906 Y48	FR 2360-260 A18+	BE -862-716 A28	DT 2810-778 A39	US 4099-336 A37+	CA 1089-623 C49+	BR 7805-336 B15	J5 4101-489 B
NL 7705-673 Y50	BR 7704-776 A26+	NL 7800-173 A30	NL 7802-737 A40	DT 2810-073 A38+	80920-A ABD	DS 2836-241 C16	SF 7803-923 B
DT 2722-988 Y50	DL -131-128 A32+	SW 7800-156 A33	SW 7802-892 A43	FR 2383-133 A50+	J5 3113-037 A45	US 4234-605 C49	ZA 7806-788 B
SW 7706-014 A02	PT -66-807 A35+	J5 3091-153 A37	DK 7801-128 A44	CA 1090-016 C49+	US 4234-450 C49	18014-B BCD	NL 7901-947 B
NO 7701-785 A03	OE 7605-769 A40	FR 2376-631 A41	J5 3139-748 B03	66995-A D	86153-A AD	BE -870-103 B10	DT 2908-845 B
J5 2146-407 A04	DS 2732-103 B21+	OE 7709-163 C49	CA 1089-703 C49	US 4100-612 A37	BE -867-523 A48	NL 7808-946 B12	OE 7808-926 C
DK 7702-257 A08	OE 7607-806 B40	21890-A DE	54556-A D	CA 1089-847 C49	NL 7804-964 A50	DT 2838-276 B12	FR 2425-417 C
SF 7701-609 A08	GB 1554-971 B44+	DT 2741-158 A12	J5 3070-546 A30	67073-A D	DT 2724-350 A50	GB 2004-542 B14	OE 7906-081 C
FR 2352-878 A11	HU 1018-327 C29+	BE -858-693 A12	J8 0043-832 C49	BE -864-990 A38	SW 7805-296 B03	DK 7803-658 B16	US 4225-593 C
BR 7703-301 A13	SU -702-997 C31	NL 7709-984 A13	54566-A D	DT 2725-262 A39	BR 7803-356 B04	SW 7809-350 B16	SW 7903-399 C
PT -66-595 A49	OE 7609-248 C41	DK 7704-080 A20	J5 3070-561 A30	NL 7802-917 A40	J5 3147-687 B06	US 4153-719 B21	SW 8003-249 C
ZA 7703-065 B09	CA 1089-699 C49+	FR 2364-269 A23	J8 0043-838 C49	FR 2383-613 A51	FR 2392-107 B09	FR 2401-897 B23	53262-B D
GB 1577-120 C43	08375-A D	GB 1531-303 A45	57151-A D	ZA 7801-561 B46	ZA 7803-031 B28	J5 4052-048 B23	J5 4070-469 B
OE 7703-673 C49	BE -859-047 A05	CA 1086-670 C43	DT 2803-634 A32	US 4190-676 C10	DS 2724-350 C02	US 4171-371 B43+	US 4234-619 C
88264-Y D	OE 7607-258 A02	US 4234-687 C49	BE -863-403 A32	OE 7801-812 C49	US 4187-121 C07	US 4208-425 C27+	53867-B BDJ
BE -855-600 Y50	DT 2735-391 A15	25208-A ADE	NL 7801-039 A33	68934-A DEF	OE 7803-835 C49	CA 1089-864 C49	NL 7900-059 B
DT 2727-045 A02	NL 7710-610 A16	BE -859-183 A14	SW 7800-962 A36	BE -865-205 A39	86474-A DJ	18378-B DE	WP 7900-475 B
SW 7706-848 A04	FR 2365-960 A26	DT 2644-542 A15	DK 7800-400 A38	DT 2812-573 A41	DT 2821-365 A48+	EP -916 B10+	EP -18-967 C
FR 2354-965 A13	BR 7706-344 A28	NL 7709-945 A16	J5 3104-767 A42	SW 7803-503 A45	J5 3141-170 B03	DK 7803-679 B14+	54385-B DE
US 4202-736 C21	DL -132-229 A46	J5 3043-711 A22	SF 7800-232 A43	NO 7800-971 A46	J5 3141-171 B03	NO 7802-821 B15+	US 4159-952 B
GB 1580-345 C49	CA 1080-549 C29	FR 2366-355 A26	FR 2378-456 A44	DK 7801-326 A46	US 4186-089 C06+	J5 4041-806 B19+	EP -2-882 B
88350-Y AD	GB 1580-860 C49	US 4172-044 B44	US 4146-652 B15	J5 3119-813 A47	DS 2821-365 C49+	BR 7805-331 B19+	EP -68-770 B
DT 2621-722 Y50	08677-A D	OE 7706-987 C49	GB 1548-358 B28	FR 2385-697 B02	89669-A BD	SF 7802-516 B22+	PT -68-770 B
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205-C D  
S 4234-423 C49

206-C D  
S 4234-425 C49

227-C BDE  
S 4234-463 C49 +

249-C DE  
S 4234-518 C49 +

270-C DE  
S 4234-566 C49 +

272-C BDE  
S 4234-568 C49

285-C CD  
S 4234-604 C49

286-C DE  
S 4234-606 C49 +

287-C D  
S 4234-609 C49 +

288-C D  
S 4234-610 C49

289-C D  
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294-C D  
S 4234-617 C49

296-C AD  
S 4234-627 C49 +

314-C CDEF  
S 4234-665 C49

319-C BDJ  
S 4234-680 C49

320-C BDJ  
S 4234-681 C49 +

321-C BD  
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322-C BD  
S 4234-684 C49

323-C BD  
S 4234-685 C49

324-C AD  
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325-C BD  
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342-C DE  
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* 057 86394C D25E16	* 469 C D16	* 975 86444C D15	* 162 86728C B01D16
* 456 86397C B04D16	* 934 C C04D15		* 173 86732C A97D25E17
* 466 86402C D16Q3	CS 7806	DT 2913	=175 84695C D15
* 476 86405C D15Q2	* 586 C D15	* 242 86445C D13J01	=176 84687C D15
* 486 86406C D16			=203 84591C D15
* 496 86408C D15Q3	CS 7807	DT 2918	* 211 86746C D15P3
* 511 86411C D14	* 093 C D13	* 363 86448C A97D25E19F06	* 214 86749C A25D15
* 561 86418C D14P1Q3	* 330 C D25	=826 86732C A97D25E17	* 215 86750C A11C04D16F09
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* 949 C D15		* 656 86462C D15E36T06	* 301 86783C D21
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* 172 C D11	* 240 C D13	DT 2920	=331 85616C D12X25
	* 271 C D13	# 033 47154B B03D22E13	=332 85617C D12X25
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CS 7702	=365 86474A D15J01	=064 86444C D15	=891 62756C B04D16S03+R1
* 869 C D16	DS 2849		=894 77685C A96B04D16S03R1
CS 7703	=927 38457C D17P4	EP -18	=895 64418C B04D16S03R1
* 652 C D16		=967 53867B B04D16J04S03R1	GB 1580
* 653 C D16		=968 19960B D22P3	=330 79793Y A97D25
CS 7704		=971 89369B D15J04T01R2	=345 88264Y D15
* 191 C D16		=999 75273B D21P3	=361 19747Y D16J04S03S05R1
* 192 C D16			=395 82885Y D15
* 770 C D16		EP -19	=439 13391A A11D16G03H04
* 771 C D16		* 010 86688C A97B07C03D22P1	* 440 86966C D17
		* 054 86696C A97B05D16	* 442 86967C D11
		* 055 86697C D15	=456 37572A D25E19
		* 072 86705C B04D16	# 485 25383Y C02D22E13F09+P3



## GB 1580

= 715 12548A B02D13E12  
= 733 79842Y D15  
= 745 88350Y A14D21  
= 843 72831Y D16  
= 844 46849Y B04C03D16  
= 860 08375A D11

## GB 2047

= 533 23708C D21  
= 537 86986C D22  
= 540 86987C D22P3  
= 563 71850C B07D21  
= 564 53314C A91D15J01M25  
= 565 66398C C03D15P3  
= 566 56933C D22P3+P4  
= 610 77220C D13  
= 614 45084C D11  
= 647 79107C D11+Q3  
= 687 87003C C03D22E14  
= 688 65926C B03D16  
= 699 79138C C02D16  
= 700 80122C B02D16  
= 709 67666C D16  
= 710 75619C D16  
= 711 77325C B05D13E14  
= 730 09172C D21E19  
= 731 87006C A60D24E12G02  
= 738 82713C D18  
= 739 86696C A97B05D16  
= 764 73722C D21E19  
= 889 87014C B04D16J04S03R1

## J4 7017

= 268 53904T A97D15+Q7

## J4 7028

= 761 87600C D15F09

## J4 7030

= 828 87604C B04C03D16

## J4 7036

= 055 04746U D15

## J4 7039

= 560 87584C D13

## J4 8036

= 358 87586C D13

## J4 8058

= 170 87588C D13

## J4 8067

= 175 87592C D15J01

## J4 8068

= 762 87587C D13

## J4 9036

= 885 87582C C03D16P1

## J4 9048

= 822 87589C B04D16

## J4 9094

= 866 87590C D16

## J4 9122

= 150 87563C D15

## J5 0040

= 488 87562C A97D15

## J5 0143

= 344 87599C D15

## J5 1039

= 954 87564C D15J01

## J5 3093

= 476 87595C D15

## J5 4123

= 476 87598C D14

## J5 5072

= 120 87022C B04D16

## J5 5075

= 719 87030C D15J01P1

## J5 5079

= 039 87041C A11D22E12J01

## J5 5084

= 505 87066C A97D15E33  
= 507 87067C D15  
= 597 87069C A97D15J01M24

## J5 5085

= 398 87072C D16

## J5 5104

= 648 87081C D11E19F06J09+Q7  
= 648 87081C D11E19F06J09+Q7  
= 895 87082C B04D16  
= 895 87082C B04D16

## J5 5135

= 117 87131C A96D21  
= 187 87181C D15G04M14  
= 531 87190C A97C03D13P1  
= 542 87191C D13  
= 545 87192C D13  
= 546 87193C D13  
= 549 87194C D13  
= 553 87195C D13  
= 554 87196C C03D13  
= 555 87197C C03D13  
= 568 87198C D13  
= 571 87199C D13  
= 582 87200C A88D18F09J01P1  
= 587 87201C D16  
= 588 87202C B04D16  
= 589 81134C B04D16S03R1  
= 590 87203C B04D16  
= 591 75564C A96B04D16  
= 592 87204C D16  
= 593 87205C A41D16E19  
= 594 87206C B04D16  
= 595 73469C B05D16  
= 597 87208C B02D16  
= 598 83031C A96B04D16  
= 599 73668C B04D16  
= 752 87258C A96B04D16J04R1

## J5 5136

= 103 87293C D15E36J03  
= 211 79244C A14D21E37P3  
= 212 79244C A14D21E37P3  
= 213 87360C D21  
= 217 87363C A96B04D16  
= 231 64662C B04D16  
= 244 79208C D25E12  
= 247 87383C D23E17  
= 249 87384C D23E17  
= 257 77325C B05D13E14  
= 268 77014C D25E16  
= 278 87402C D18E13P1  
= 282 77431C B02C02D16  
= 286 57396C B02D16

## J5 5137

= 008 87484C A97D17J01  
= 009 87485C D15  
= 010 87486C D15  
= 011 87487C D15  
= 012 87488C D15  
= 013 87489C D15  
= 015 87491C D15  
= 016 87492C D15  
= 017 87493C D15  
= 035 79089C D13  
= 082 87519C D15  
= 084 87521C D15  
= 085 87522C D15E36  
= 086 87523C D15E13  
= 087 87524C D15E12M13  
= 101 73730C A11D25  
= 106 87529C A13D15J01

## J8 0043

= 361 54662X A88D15J01  
= 362 87395X A88D15J01  
= 363 34779Y A88D15J01  
= 370 87562C A97D15  
= 371 04746U D15  
= 372 87563C D15  
= 373 87564C D15J01  
= 376 88473Y D15J02  
= 387 00311T D15J01  
= 396 47760V B05D15E16  
= 397 69538Y A88D15  
= 400 32945X D15J01  
= 415 25090B D17E16L02M14  
= 443 31285W D21  
= 444 43452W A96D21  
= 445 43117B A96D21  
= 451 77245A B04C03D16  
= 471 32890Y A35D21E13  
= 723 87582C C03D16P1  
= 733 53460S D13  
= 737 87584C D13  
= 738 78939A D13  
= 739 87585C D13  
= 740 87586C D13  
= 741 87587C D13  
= 742 87588C D13  
= 746 04957B D12E34  
= 754 87589C B04D16  
= 755 87590C D16

## J8 0043

= 756 29361A B04D13P1  
= 757 87591C B04D16  
= 758 33793T B04D16  
= 759 49286V A41D16E17H04  
= 760 36337W B05D16E19  
= 801 87592C D15J01  
= 808 90541A D15J01  
= 810 87595C D15  
= 814 79892X D15E03J01L02  
= 816 87598C D14  
= 831 59361W D15J01+P4  
= 832 54556A D15  
= 833 87599C D15  
= 836 87600C D15F09  
= 837 35377U D15  
= 838 54566A D15  
= 839 53904T A97D15+Q7  
= 840 71269W D15L02+P4

## J8 0044

= 043 19259C D21  
= 044 07126R A16D21  
= 045 72956U D21E11  
= 046 84988B B04C03D16  
= 047 87604C B04C03D16  
= 060 17936T B05D22E14  
= 120 25527Y A11D23F09  
= 284 40707C D15+Q7

## NL -165

= 361 54342R D12  
= 373 33909W A96D22F04P3+P7  
= 375 00178S D21E12+P3  
= 376 39183W D21E13  
= 377 30884U B05D21E11  
= 378 33483S D22E17P3  
= 385 07852X D15F04J01+Q6  
= 450 23136S D16E17  
= 467 55451R D17E13  
= 472 12782Y A13B04D16  
= 497 88297R D25  
= 498 68624R B04D16  
= 499 39925V D16E17  
= 500 54028R D17  
= 501 64041T B04D16  
= 544 42761W D14Q7

## NL 8001

= 712 87640C D15

## NL 8002

= 264 86580C D11X25+Q7  
= 583 84716C D22E16+P3  
= 627 84365C B05D16E19  
= 630 69592C B05D21E19  
= 725 67792C D15H05J01  
= 750 69827C D13  
= 755 84342C A96D21  
= 757 84341C D21  
= 792 84773C A88D15J01P3  
= 794 64236C D23  
= 851 71611C D22P3Q7  
= 862 84671C D15J01  
= 870 86617C D13P1

## NO 8000

= 886 86444C D15

## NO 8001

= 048 79246C B04D16  
= 100 79266C D15  
= 112 62309C A96B05C03D22  
= 114 77067C B04D16  
= 134 79256C C03D13

## OE 7406

= 312 12692W D22J01+P3

## OE 7509

= 193 46063X D13J01+Q7

## OE 7600

= 918 48054X A35D15H09+Q7

## OE 7601

= 467 72487X A97D25E11

## OE 7703

= 673 84672Y A97D25E12

## OE 7704

= 364 84556Y D25  
= 404 00033A D23E13

## OE 7706

= 987 25208A A97D25E17

## OE 7707

= 535 C D15J02  
= 763 33415A D25E19

## OE 7708

= 503 38496A D21E24

## OE 7709

= 163 19762A D13E17

## OE 7801

= 717 65287A D13  
= 719 58882A D25E13  
= 804 C B04D16  
= 812 67073A D13

## OE 7803

= 835 86153A A97D25+P4

## OE 7805

= 547 08036B A84D14P2

## OE 7808

= 213 C D22S05P3  
= 902 54385B D13E17

## OE 7900

= 745 60256B B02C02D13

## OE 7901

= 793 66331B D25E34

## OE 7902

= 118 72134B D21E23  
= 181 72133B D21E13  
= 191 72173B B02C02D16

## OE 7903

= 873 87598B A97C03D13

## OE 7904

= 582 C D22

## PT --71

= 009 86444C D15

## SF 8000

= 360 87082C B04D16

## SU -688

= 442 87669C A14D15E16

## SU -712

= 071 87671C D13  
= 072 87672C D11  
= 395 87677C A97D15  
= 399 87678C D15E36J03  
= 469 87683C A11D22F06

## SU -718

= 676 87705C D14Q7

## SU -724

= 113 87725C D13  
= 114 87726C D13  
= 115 87727C D14X27  
= 116 87728C D13  
= 166 87737C D15J01  
= 183 87740C D13J04  
= 451 87764C D15J08

## SU -728

= 830 87812C D14S03T06R1  
= 862 87814C A35D22P3

## SU -729

= 094 87886C D14P7  
= 128 87894C A97C04D15  
= 129 87895C D15  
= 130 87896C D15  
= 133 87899C D15L03T06X25R2  
= 134 87900C D15X25P4  
= 135 87901C A97D15J01M25  
= 136 87902C D15J01P4  
= 137 87903C D15  
= 138 87904C D15M12  
= 139 87905C A41D15E14  
= 140 87906C D15J01  
= 141 87907C A11D15E32  
= 142 87908C D15  
= 143 87909C D15X25  
= 183 87947C D23E17  
= 195 87958C D25E17  
= 197 87960C A11B04D16  
= 237 87996C D23  
= 238 87997C D16  
= 239 87998C D16  
= 240 87999C D16  
= 241 88000C D16  
= 242 88001C D16  
= 243 88002C D16  
= 244 88003C B04D16  
= 245 88004C D16T06  
= 246 88005C C03D16  
= 247 88006C D16  
= 508 88062C D16S03R1



## SW 7903

\* 310 C D25  
 = 367 79412C D15M25Q4  
 # 399 52996B C02D13

## SW 7907

= 262 80119C C03D13

## SW 8001

= 671 79131C D13

## SW 8002

= 372 49934C D15Q4  
 = 827 80122C B02D16  
 = 847 62309C A96B05C03D22  
 = 898 77067C B04D16

## SW 8003

# 249 52996B C02D13

## US 4233

\* 709 88073C D12  
 \* 710 88074C D12  
 = 892 72242B D14P2  
 = 969 38776A A96D22P3  
 \* 976 88105C D21E33P3  
 \* 993 88106C A97D18E37P1

## US 4234

\* 086 88117C D22Q3  
 \* 281 88140C D11Q3  
 = 310 63818A A96D21L02 + P3  
 = 316 77480C B04D16J04S03R1  
 \* 349 88163C D17  
 \* 350 88164C A97D17  
 \* 419 88202C D15  
 \* 421 88204C D15  
 = 422 84527B D15E32J03  
 \* 423 88205C D15  
 # 424 10442B D15  
 \* 425 88206C D15  
 = 431 67300X A88D15F01J01  
 # 442 06032C A97D25E34  
 = 444 05614C A97D25E19  
 = 450 80920A A97B07D21  
 = 460 29978B D13E17J01  
 \* 463 88227C B02D13E13P3  
 = 464 77013C D25E17  
 = 465 75549B D25E16F06  
 = 475 20300C D21  
 = 509 18378B D13E17  
 # 516 35305F B04D16  
 \* 518 88249C D23E15  
 = 528 77583B A88D15E36J01  
 = 537 22068B B07D14P3  
 = 564 76264A A96B04D16J04 + R1  
 = 565 72730A A14C03D14  
 \* 566 88270C D21E19  
 \* 568 88272C B03D21E11  
 = 570 89669A B04D16  
 = 577 72780C B01D16  
 \* 604 88285C C03D13  
 = 605 16291B D11 + P2  
 \* 606 88286C D11E17  
 = 607 01977C D12  
 = 608 37609B C03D13  
 \* 609 88287C D12  
 \* 610 88288C D12  
 = 611 57151A D13  
 \* 612 88289C D11  
 \* 613 88290C D13  
 \* 614 88291C D13  
 \* 615 88292C D13  
 \* 616 88293C D13E13  
 \* 617 88294C D11  
 = 618 89838B D13  
 = 619 53262B D13  
 = 620 50263C D13  
 \* 627 88296C A97D25P4  
 = 652 18181Y A97B07C03D15  
 = 662 62324C A81D22G03 + P4  
 \* 665 88314C C03D22E14F09P4  
 \* 680 88319C B04D16J04  
 \* 681 88320C B04D16J04  
 \* 683 88321C B04D16  
 \* 684 88322C B02D16  
 \* 685 88323C B03D16  
 \* 686 88324C A97D16  
 = 687 21890A D16E13  
 = 688 51675A D17  
 = 689 71998C A11D16H01J01Q2  
 \* 690 88325C B02D16  
 = 691 64923B B04D16  
 = 692 66337B A28C03D15F06 + P3  
 \* 717 88333C B03D16  
 = 727 20418C A60D22E19  
 \* 741 88342C D13E17